Bridging Heritage
&Modernity

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# Bridging Heritage &Modernity

A Contemporary Vernacular Resort Design In Alula

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## ABSTRACT

"This thesis presents an architectural exploration in AlUla, Saudi Arabia, where traditional and contemporary design principles converge to create a contemporary vernacular resort seamlessly integrated into its natural oasis landscape. Inspired by AlUla's unique architectural heritage, the project reinterprets local typologies, infusing them with modern design elements that honor cultural identity while advancing sustainability. Through meticulous 3D modeling, architectural detailing, and the innovative use of locally sourced materials, the design addresses energy efficiency and respects Sustainable Development Goals. This approach fosters a dialogue between tradition and innovation, offering a model for sustainable, context-sensitive architecture that harmonizes with AlUla's distinctive cultural and environmental fabric."



## KEYWORDS

Contemporary vernacular design

Revitalization

cultural identity

Bridging past and present

Sustainable tourism

Energy efficiency

Authenticity

Sustainability




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## 1- Vernacular Architecture & Tourism

A brief introduction to vernacular architecture and tourism

Vernacular architecture is referred as traditional local building styles which evolved over time ,responding to the influence that the environment, local culture and available regional resource possess.
These structures are basically characterized by locally sourced materials ,as well as methods and designs adapted to the specific climate and landscape.

Vernacular architecture is a testament to a community's cultural heritage,offering a present connection to the past while reflecting the history, values, and practices of its inhabitants.Nevertheless vernacular architecture plays a crucial role in promoting sustainable practices,such as energy efficient passive design principles,and unlikely to rely on modern resource-intensive systems . in addition the integration of local materials and craftsmanship creates an environmental harmony between manmade structures and nature,hence minimizing ecological footprint.

Tourism with its increasing influence worldwide tends to become a source of preservation and a challenge to the integrity of vernacular architecture in touristic sectors. For that ,its imperative to currently recognize an urgent need of balance between preservation of local architectural traditions and the demands of modern tourism development .
In the context of this thesis, I will explore how vernacular architecture can be preserved in AlUla, Saudi Arabia, ensuring its relevance and integration into a sustainable, contemporary vernacular design within a  resort that respects the region’s cultural heritage while embracing modern design principles.



INTRODUCTION
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## 2- Theme

The theme of my thesis is to create a bridge between cultural heritage and modernity by regenerating and reviving vernacular architecture in Alula.
This project aim to provide traditional design elements with sustainable and contemporary solutions, nevertheless making sure to preserve the regions rich architectural identity in a modern resort design which meets the needs of sustainable tourism.
By reimposing Alulas architectural significances into the design ,I am hereby creating a place where past and present coexist harmoniously ,while offering a unique local sensitive experience for future generations.

## 3- PROBLEMATIC

With the rapid modernization taking place vernacular architecture is being neglected  and replaced by modern designs and visions that doesn't resemble the local culture and heritage ,leading to a shift in cultural experience and being replaced with generic modern visions .
With that consequences appear specially in the environmental, economical and cultural sectors where challenges and changes occur while undermining the value of architecture rooted in tradition and sustainability for centuries of evolution , specially in the touristic sector.

**How can contemporary architecture revive and integrate vernacular principles and design to address these environmental, economic, and cultural challenges while fostering sustainable and culturally authentic tourism development?**

## 4- PERSONAL GOAL & OBJECTIVE

**Goal:**

To conserve and revive AlUla's cultural heritage and vernacular architecture by integrating traditional design principles with contemporary approaches, creating a sustainable model that celebrates the region's identity and ensures its relevance for future generations.

**Objective:**

To design a resort on a site in AlUla that embodies the essence of vernacular architecture while promoting sustainable tourism. The project aims to attract visitors from all around the world, offering them an immersive experience of AlUla's historical and cultural richness through contemporary vernacular architecture that harmonizes and blends with the natural and cultural landscape.



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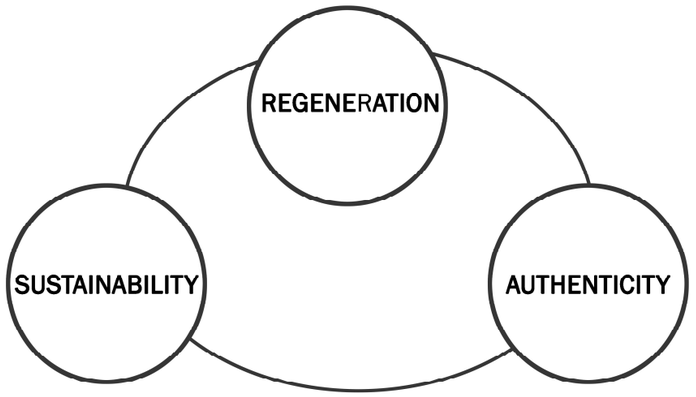
## 5- THEORETICAL CONCEPT

This project includes the following three central principles that will guide my architectural design process, ensuring the resort fosters meaningful connections,while respecting its context :

A)Regeneration
Where I focus on reviving and adapting Alula's traditional elements and cultural heritage,hence seeking to bridge the past and the present. By regenerating vernacular architecture in the area ,ensures the continuation of cultural heritage while addressing contemporary needs.
B)Sustainability
Involve the usage of local materials,and energy-efficient architectural design, that minimize the negative impact on the environment while promoting a long-term ecological balance .Nevertheless incorporating modern materials that blends with local's traditions without exposure and minimizing its negative impact on global climate.

C)Authenticity
In my point of view authenticity refers to creating genuine experiences that reflects local unique cultural ,historical, and architectural essence .Regarding Alula, authenticity means offering a deep connection to the region's heritage through an immersive design which drives tourism demand ,as visitors seek memorable encounters ,and authentic cultural experiences.



## 6- METHODOLOGY

The methodology integrates a comprehensive approach by blending traditional architectural practices with modern design tools through employing an architectural resort design in AlUla's east canyon. This approach utilizes a brief introduction of local tradional vernacular design and cultural heritage, while mentioning the royal commission of Alula’s vision.Leading to 3D model design to explore and reinterpret vernacular architectural elements in a contemporary project, ensuring harmony between the resort and its natural oasis landscape.

As well as focusing on locally sourced materials which are prioritized to reflect AlUla’s cultural identity while reducing environmental impact. The design incorporates Arabian architectural features as well as stratigraphy layers for walls and roofs inspired by AlUla's heritage, enhancing energy efficiency and sustainability. By preserving the site’s natural topography, the methodology aligns with Sustainable Development Goals, bridging cultural heritage with contemporary practices, while maintaining a healthy sustainable touristic example.

CHAPTER 1

CHAPTER 1
Bridging Heritage & Modernity

## 1- ALULA’S HISTORICAL & CULTURAL SIGNIFICANCE

AlUla, one of Saudi Arabia’s most historically rich regions, has long been a crossroad of cultures, reflecting a deep history of trade, cultural exchange, and architectural tradition,located in the Madinah region of Norwest Saudi arabia ,is a true testament to human endeavor and natural beauty.
Alula’s history dates back to the 6th century BCE ,and now considered ideal for a new township because of its perfect oasis location in the valley desert, making it one of the few areas with fertile land and ample water supply. AlUla was built along what was then referred to as the "Incense Road," which was essentially a trade network for spices and silk throughout the Arabian Peninsula, Egypt, and the Indian subcontinent, and now it is one of the newest tourist development projects in Saudi Arabia. In April 2021,

Crown Prince Mohammad Bin Salman announced a sweeping development plan known as the "Journey through Time Masterplan." Which embodies the revitalization of the city while preserving its rich cultural history and architecture.

*“We will turn AlUla County into a living museum, creating memories that visitors will share with the world. Heritage is the main asset of AlUla. We have to use this asset to offer visitors a unique journey through time where they can enjoy a living museum.”*
-Crown Prince Mohammed bin Salman bin Abdulaziz



Fig. 01 : A picture of Alula’s ruins within natural green oasis

## 2- THE CONSERVATION OF ALULA OLD TOWN BY THE ROYAL COMMISSION OF ALULA (RCU)

Until recently, the historic old town of AlUla sat deserted. Local inhabitants had moved out to more modern homes in nearby Jadidah (literally “the new one”) and Sukhayrat, abandoning their previous residences. The state of the old town was tragic in contrast to AlUla’s rich history as a thriving centre for international trade and cultural exchange.

Hanan AlBalawi opened her jewellery store in AlUla in 2019, just as the country welcomed tourists for the first time.
-*“The Old Town was a desolate place,” Hanan says, speaking of the Old Town she remembers growing up. “It was somewhere we would drive past without stopping. It was not possible to safely explore it as we can now, and there was nothing open.”*
-*“I really wouldn’t know what I would be doing now if the recent changes had not happened here,”* she reflects.
-“I am sure I would not still be in AlUla.” The Old Town’s revitalisation in recent years seems to be reinforcing the traditional family unit in some ways, providing opportunity to bring generations closer together and reducing tensions caused by frustrated ambitions.

The Royal Commission for AlUla (RCU) was established by royal decree in July 2017 to protect and safeguard AlUla, a region in north-west Saudi Arabia. RCU is embarking on a long-term plan to develop and deliver a sustainable transformation of the region, reaffirming it as one of the country's most important archaeological and cultural destinations and preparing it to welcome visitors all around the world. RCU’s development work in AlUla encompasses a several initiatives involving archaeology, tourism, culture, education and arts, reflecting the ambitious commitment to cultivate tourism and leisure in Saudi Arabia, outlined in Vision 2030. An important project of the RCU’s masterplan is to rejuvenate AlUla’s Old Town and its tightly packed network of historical buildings, together with the surrounding natural oasis.



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Adel Alanazi comes from a Bedouin family of the AlUla region, which settled in the city around 30 years ago. Adel says *“The Old Town was like a ghost-town, the last place people would want to visit. Now it is somewhere I would never want to leave.”*



Fig. 02 : Alula old town’s ruins ,overlooking mountain views and fortress

## 3- TRADITONAL SAUDI ARABIAN AND ALULA-SPECIFIC ARCHITECTURAL STYLES

Ronald Lewcock, a well-known researcher ,analyses Vernacular architecture in the arab peninsula and explores the unique architectural styles that developed in response to the harsh desert environment, social norms, and cultural heritage of the region. Traditional Saudi Arabian architecture, as described by Lewcock, features thick mud-brick walls, small windows, and high-density layouts to reduce heat exposure and provide natural cooling. This design adapts to the desert climate and emphasizes the use of locally available materials, including stone, clay, and wood from palm trees, reflecting both practicality and cultural identity.

In AlUla, traditional structures exhibit similar 3 main important features, with buildings positioned stick to one another hence decreasing heat contact on exterior exposed façade surfaces leading to a decrease in heat absorbtion and normalize interior climate.
Moreover, the close proximity of housings create shaded alleys known as “seeka” which are mainly tight that encourage community interaction while offering relief from the intense sun.
In addition Courtyard layouts are also common, providing a microclimate which enhances airflow and regulates the high temperature in desert hot areas ,adding to that, central courtyards play a huge role in social gathering were people interconnect and share their cultural activities daily hence making courtyards a special feature in the everlasting contribution of vernacular architecture.

Lewcock highlights the cultural significance of these designs, where privacy, family values, and social interactions are central to architectural planning. Through such thoughtful adaptation to the environment and social needs, traditional architecture in AlUla embodies both functional resilience and deep-rooted cultural symbolism.



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Fig. 03 : Alula old town’s ralleyways called “seeka”



Fig. 04 : Alula old town partial ruins plan view



Fig. 05 : Public courtyard in the arab peninsula’s culture

## 4- CONTEMPORARY VERNACULAR ARCHITECTURE PRINCIPLES IN ALULA AND SUSTAINABLE DESIGN PRACTICES

In Alula, contemporary vernacular architecture means blending today's modern design with its marvelous cultural and natural landscape that shape up alulas history and preserve its unique identity .

in order to create a contemporary vernacular architecture, the design should prioritize structures that blend seamlessly into the regions environment, using forms,colors, and local materials that showcase the regions sandstone valleys ,mountains and rich oasis.

For instance the following are important techniques to incorporate in any contemporary project un Alula with the aim of vernacular preservation:

A-**Use of local materials:**

-Sandstone
-Mudbrick
-clay
-Palm wood

Note: these materials is a must to use and take advantage of, leading to positive impacts such as minimizing transportation emissions,hiring local talent, blending with the local environment . these elements lead to the contribution of local growth in economy and vernacular practices.

B- **1) Climate responsive vernacular local techniques:**

- shaded courtyards for a regulated microclimate
-thick walls for thermal isolation
-seeka alleyways for natural ventilation
-small openings for internal aeration and heat diffusion
-wall to wall housing units for minimal heat impact

**2)Climate responsive contemporary techniques aligning with vernacularity:**

- green roofs
- shading fabrics

C-**Cultural heritage design preservation techniques:**

-usage of local motifs and patterns
-using existing cubic uniform design
-preserving traits of existing market ,and residential functions in shape and order
-design structures blending with landscape and maintain harmony





With these techniques implemented , provides an educational opportunity for visitors to engage with alulas history and culture, in other words, they strengthen Alulas identity for future generations to come while maintaining the demands of modern tourism.

Case study:preserving alula old town

This case study's importance is to showcase the important elements and materials used within the restoration of Alula old town by HCC (Heritage Conservation Company).

The restoration efforts began in 2017 to study damages and aimed to conserve homes, mosques, and streets,that are heavily damages through ages , while applying international conservation standards. HCC played a role in these restoration efforts by applying UNESCO principles to safeguard the cultural integrity of AlUla Old Town

**UNESCO Principles:**

a-Authenticity and integrity(maintaining historical character of the structures)
b-Sustainable and Local resource Utilization(minimize environmental impact by local material usage)
c-Community Involvement(engage local communities in restoration process, ensuring cultural practices and traditions are upheald, nevertheless supporting local economic growth)
d-Educational and cultural continuity(Using site as a platform for cultural education and tourism,allowing visitors to engage with site's heritage)
e-Dynamic Conservation(adopting evolved conservation methods with new technology while adhering to guidelines of international charters such as "venice charter". Ex:experimenting traditional plaster techniques and adapting them to modern technological durability needs)
f-Tourism Management(Integrating eco-tourism principles &sustainable tourism plansto minimize environmental footprint of tourism activities.

These principles provide a framework for making AlUla a global model for integrating heritage preservation with sustainable tourism.



Fig. 06 : Mudbrick modeling by local community workers



Fig. 07 : Clay implementation on exterior finish face

CHAPTER 2
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## 1- RCU PROJECT AND ARCHITECTURAL MASTERPLAN : HOSPITALITY SECTOR

RCU's sustainability and cultural guidelines form the foundation of the “Journey Through Time Masterplan”, aligning with UNESCO’s principles for cultural heritage protection which were mentioned in the previous chapter.
These guidelines ensure that AlUla’s development is inclusive, community-driven, and respectful of its history and environment, while equally flexible in their capability to promote contemporary interpretations of local architecture.
In the following paragraphs RCU Urban and Architectural guidelines (regarding the Hospitality sector ) will be presented with basic standards to design a contemporary vernacular resort architectural project in Alula specifically in the Eastern Canyon zone of the RCU Masterplan:

1)RCA Guideline Categories

- Residential Guidelines
  - -Residential Plot Design
  - -Mixed-Use Plot Design
- Community/facility Guidelines
  - -Cultural Services Design Requirements
  - -Educational services Design Requirements
  - -Government services Design Requirements
  - -Healthcare Facilities Design Requirements
- Commercial Guidelines
  - -Hospitality Plot Design Requirements
  - -Offices Plot Design Requirements
  - -Retail Plot Design Requirements

NOTE: This project will take into account RCU’S commerical guidlines, specifically : “Hospitality Plot Design Requirements” which enhances project integration within Alula’s landscape and preserve regions architectural revitalization plan.

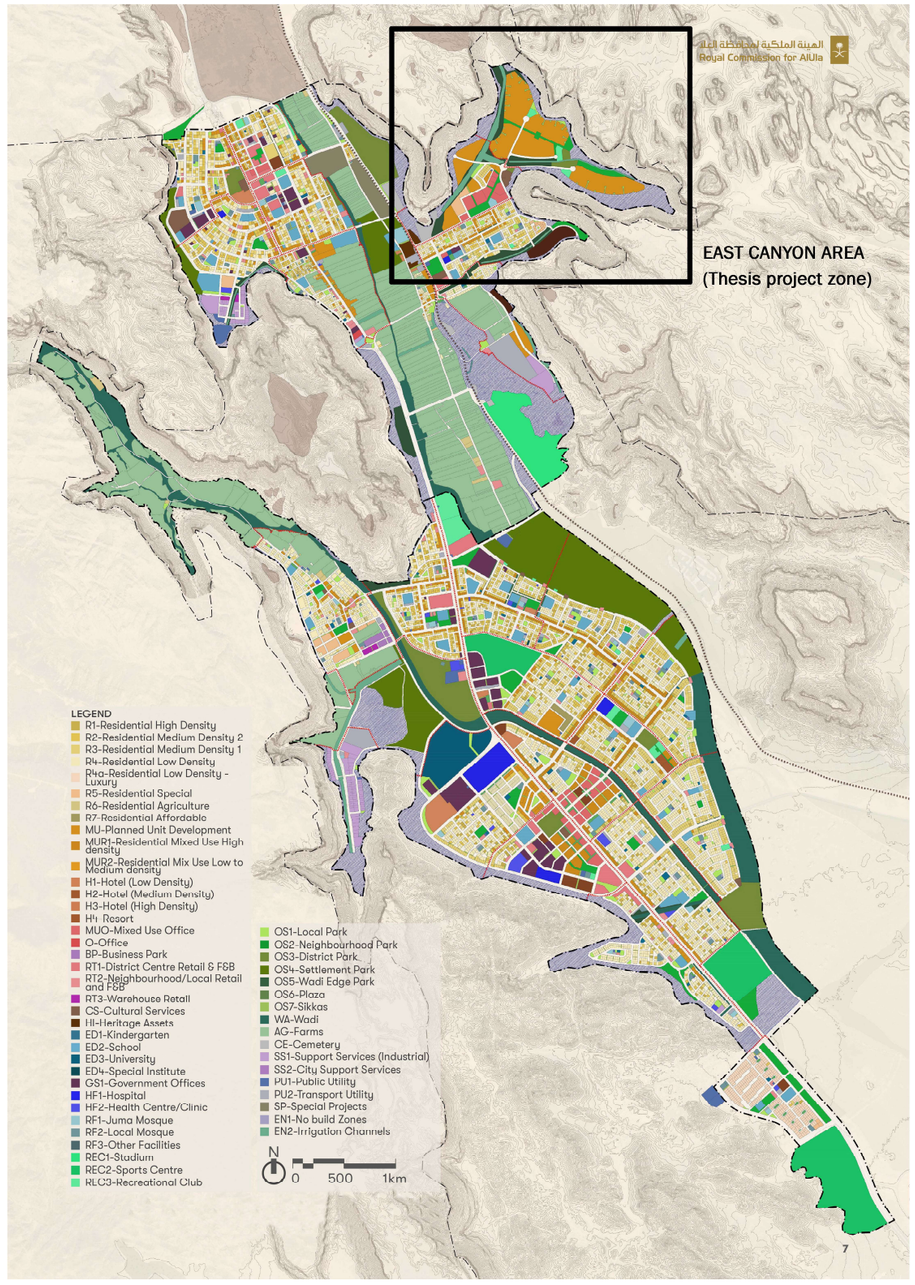


Fig. 08 : “Journey through time” Land use Masterplan for : Alula cenral, East canyon, Alula south

## 1- RCU PROJECT AND ARCHITECTURAL MASTERPLAN : HOSPITALITY SECTOR

### 2) Hospitality plot design requirements

**A-Urban Design Guidelines**

1-Plot Parameters Design:;

• Recommended major axis of blocks go North to South. This ensures the streets are shaded during most of the day.

• Orient massing to provide maximum shading for the courtyards and streets within the plot and any adjacent key public space.

• Utilize streets and their alignments to funnel cool breezes through the plots.

• Provide frequent open spaces, widening and internal plazas – at least within 3 minutes walking distance of any point

2-Form & Massing Design:

• The built form should take reference from traditional building form and massing

• Design houses with courtyard typology, whereby the house is built around one or more courtyard and connected with other houses as a part of an organic cluster.

• It is encouraged to have a compact design where structures are built with shared side walls (sometimes from three sides) so they shade one another reducing the solar heat gain and glare.

• Courtyards, basements, pools and water features can be used to provide passive pre-cooling and reduce convective heat gains from ventilation.

• Encouraged to vary story heights in buildings to create vertical interest in the development.





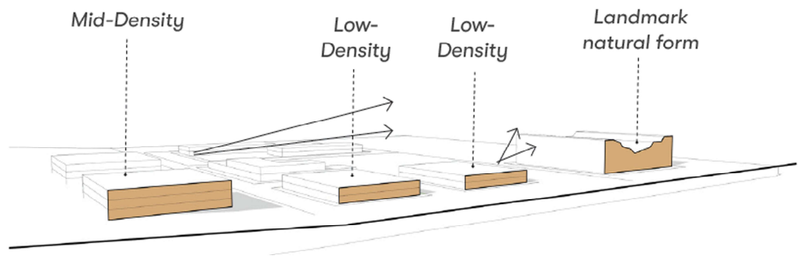


Fig. 09 : Using varying typologies and built forms

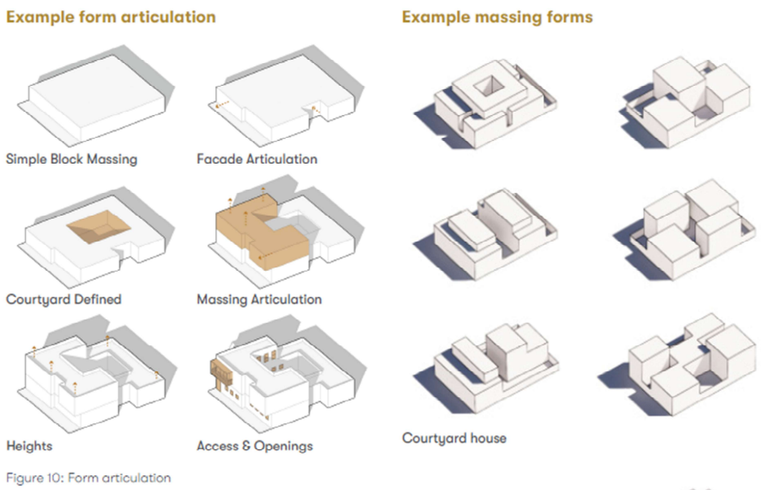


Figure 10: Form articulation

Fig. 10 : Massing form diagrams(RCU guidlines for Urban Areas 2020)

CHAPTER 2
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## 1- RCU PROJECT AND ARCHITECTURAL MASTERPLAN : HOSPITALITY SECTOR

### 2) Hospitality plot design requirements

**A-Architectural Design Guidelines**

1-Architectural Design Style for East Canyon

- "Contemporary Vernacular" architectural Design Usage
- Arabic Revivalist architectural design usage

Description: Contemporary Vernacular in architecture refers to a style that integrates modern construction techniques and materials with traditional, region-specific design elements.

The provided images below represents ideas of contemporary vernacular styles in general which can be a source of inspiration to reinterpret/reimagine design inmplementation across Alula



Fig. 11 : Massing form diagrams(RCU guidlines for Urban Areas 2020)

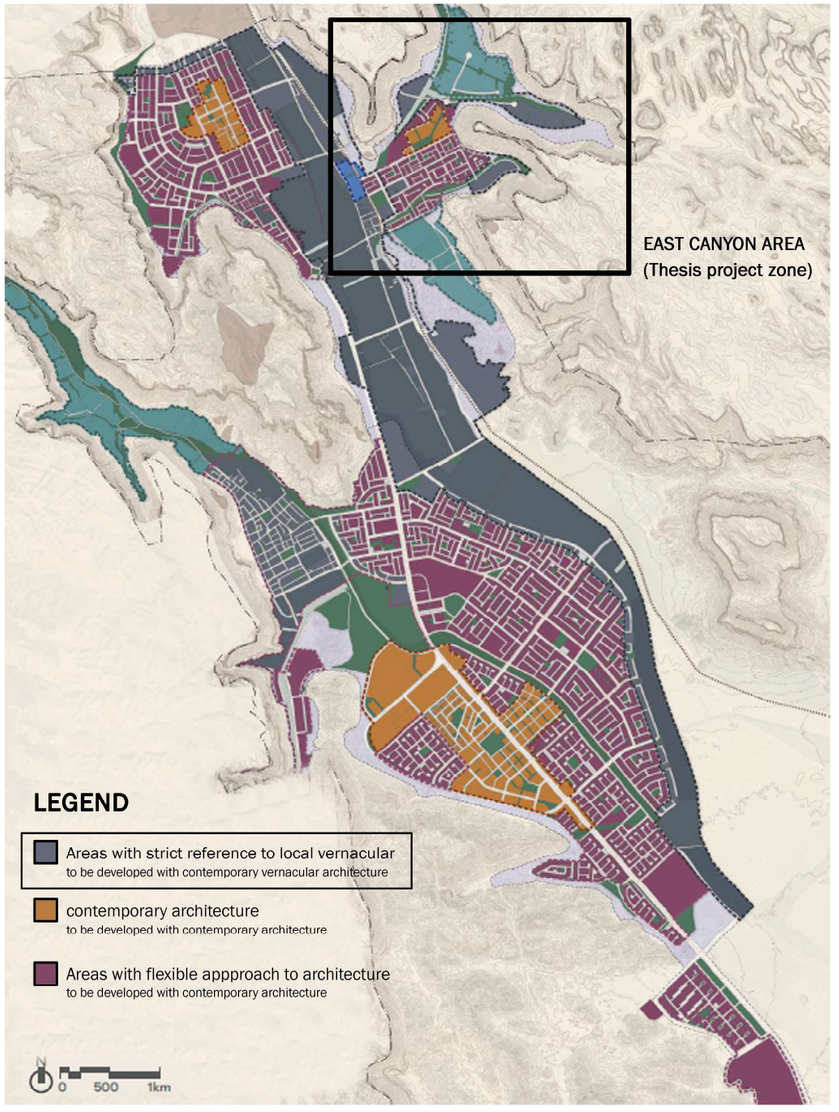



Fig. 12 : Architectural developement design control plan(RCU guidlines for Urban Areas 2020)

CHAPTER 2
Bridging Heritage & Modernity

## 1- RCU PROJECT AND ARCHITECTURAL MASTERPLAN : HOSPITALITY SECTOR

### 2) Hospitality plot design requirements

**A-Architectural Design Guidelines**

2-Alula's Traditional Design Features

**Design features**

Essential design elements that feature in traditional architecture across Alula:

- Simple massing but with a degree of articulation
- Broken into horizontal and vertical volumes
- Courtyard &porches
- Square and rectangular openings
- Deep recessed windows with wooden shutters

Decorative Arabic features including:

- Colorful metal / wooden doors
- Arches/ collonades
- Pergolas
- Shade structures & screens
- Geometric pattern
- Plain & minimal decorative elements are encouraged
- Flat roofs with parapets
- Minimal exterior openings, usually aligned

**Materials & Colors**

One of the main elements that define vernacular architecture in Alula is the unified colors and materials:

- Locally sourced materials:
- Mud bricks
- Sandstone
- Mud clay plastering
- Decorative metal work
- Decorative wood / palm wood usage
- Earthy and neutral external color schemes
- Rammed earth

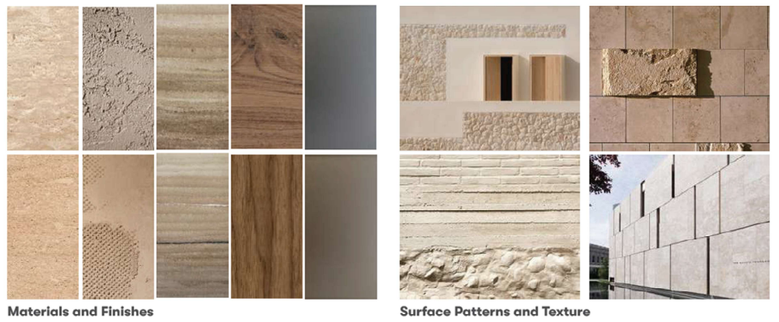



Fig. 13 : Materials, finishes and patterns applicable in Alula developement

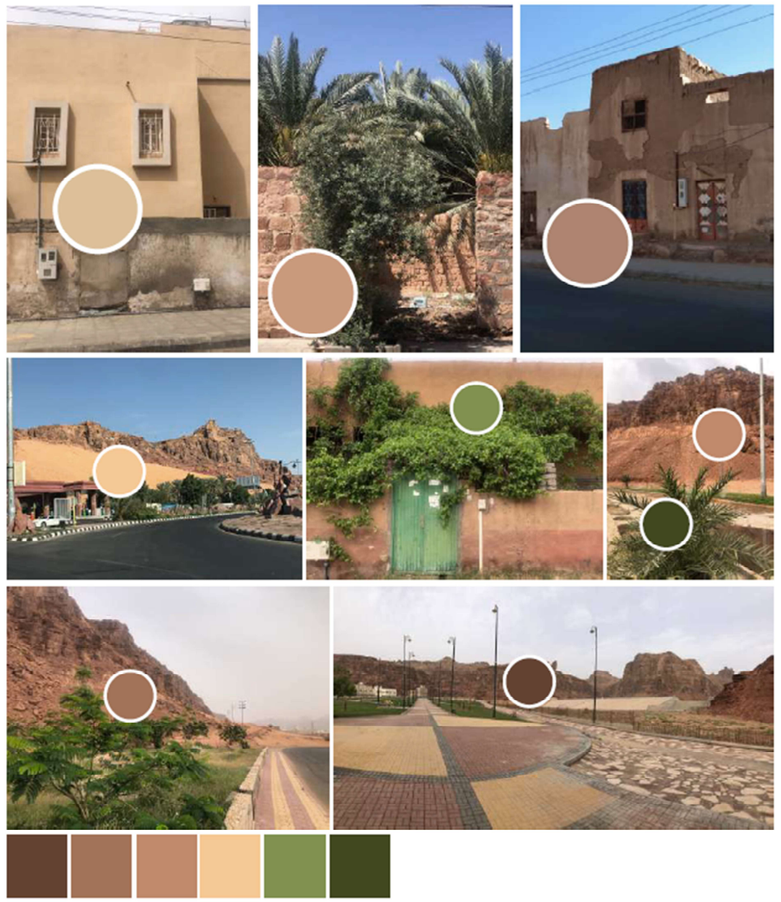
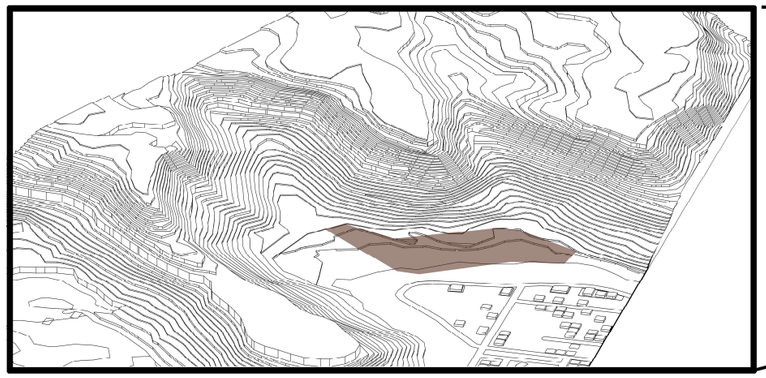


Fig. 14 : Alula's dominant local colors

CHAPTER 2
Bridging Heritage & Modernity

## 2- PLOT SELECTION

The architectural design project will be situated in the East-Canyon of the central development plan .
The East canyon is a zone which is planned for future hospitality developments.
In that area 3 resorts plots are available for development , in which I chose the one (fig. )that is most convenient with my goals objectives, and period of work.



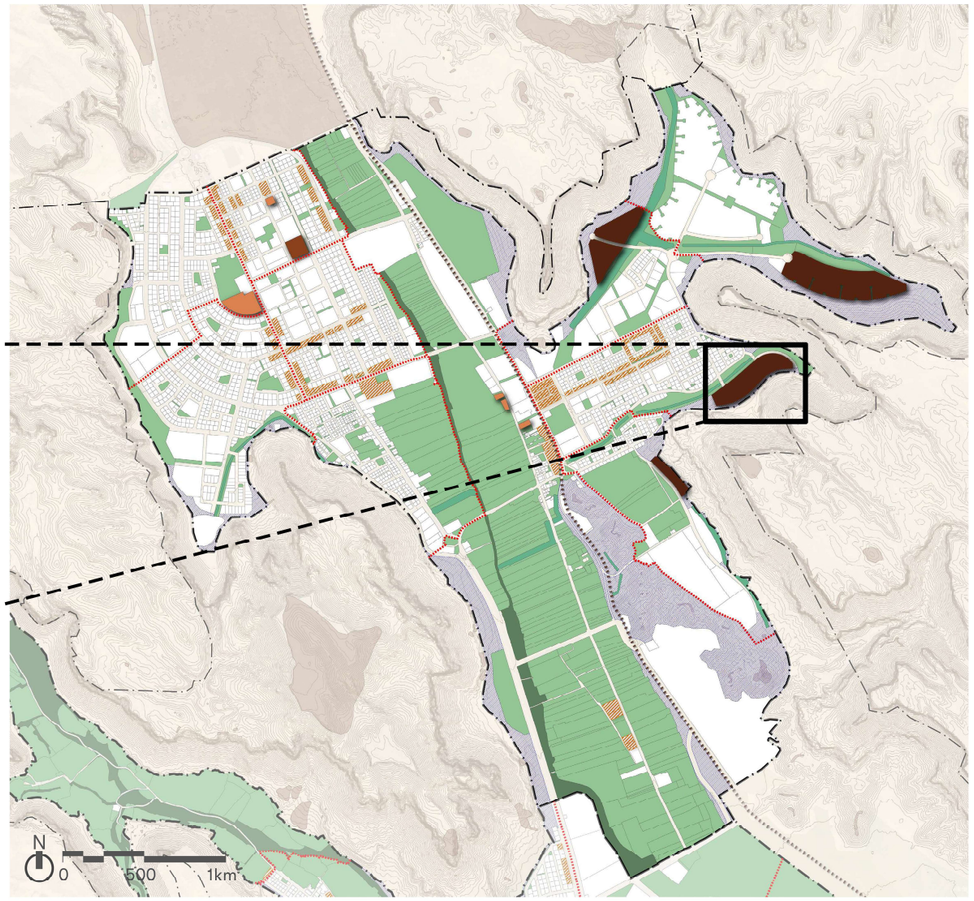



Fig. 15 : Alula central / East canyon , commercial hospitality land use distribution plan

The project will be situated between 2 valeys on an inclined plot ,integrated on both ends with a natural green oasis.
The project topography helps overview Alula east canyon's city view as well as the nearby mountain valley .

For that it is imortant to design a project resort that blends seamlessly within surrounding landscape, inspired by Alula's old town vernacular architecture ,while implementing contemporary designs respecting RCU architectural guidlines which revives history and preserves cultural identity and local architectural features.

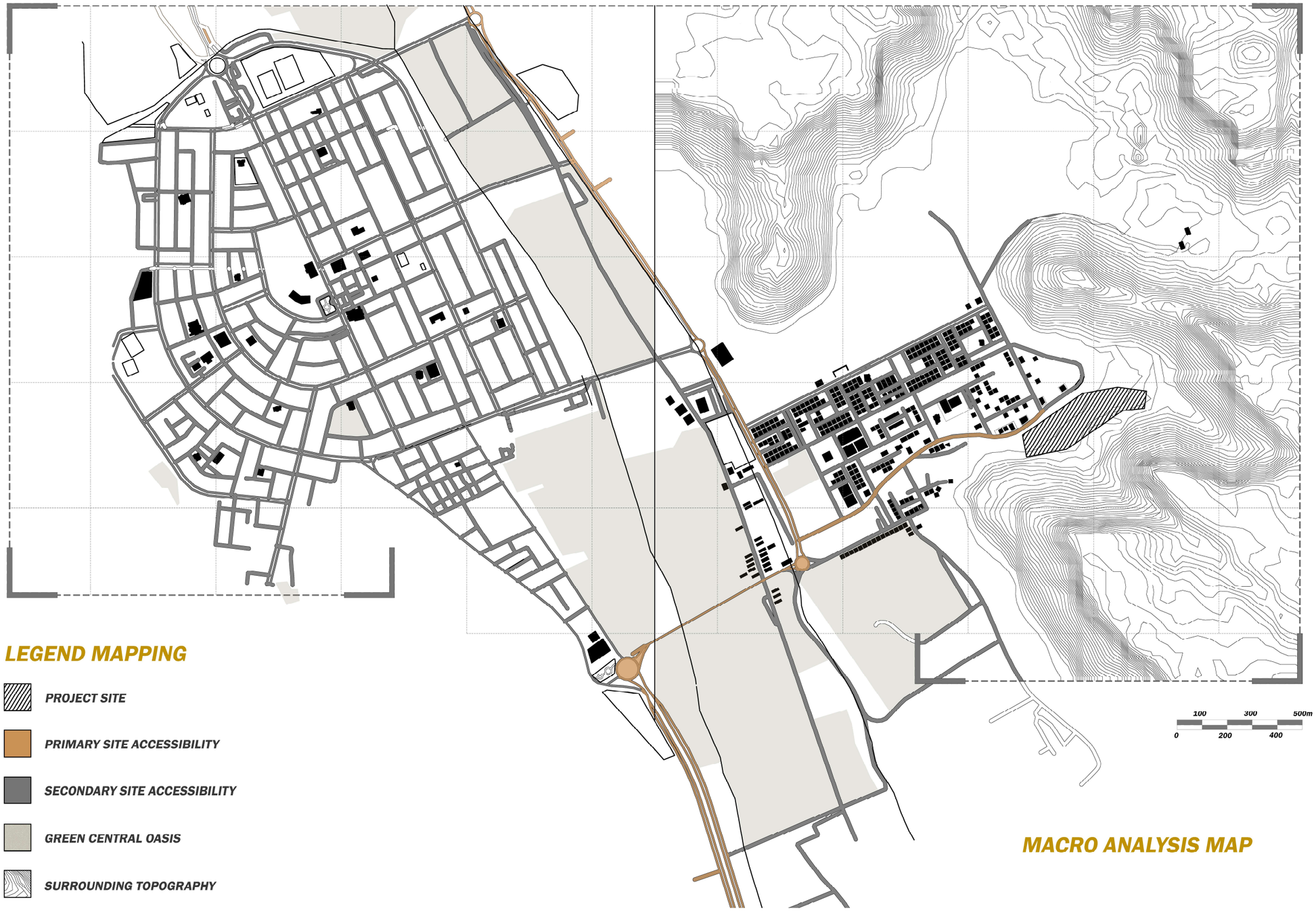
CHAPTER 3



Chapter 3
Project Design

## 1- Site Analysis

ALULLA
Central/East canyon



Chapter 3
Project Design

## 1-SITE ANALYSIS

### FUNCTIONAL MAPPING

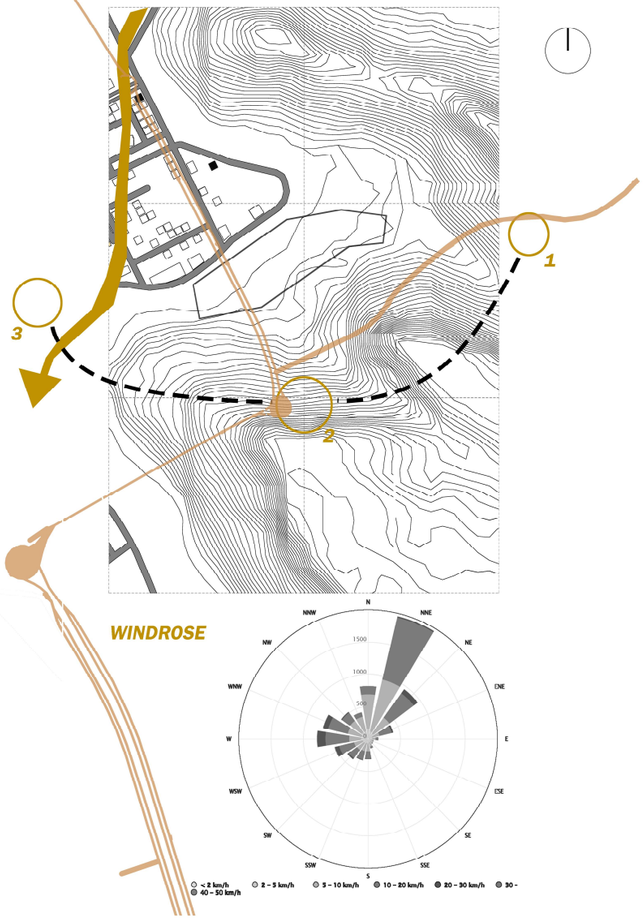
The functional map below shows all nesecary functions in project site surrounding areas. With respect to the new resort that is being designed some essential surrounding functions are missing such as restaurants, green  spaces, commercial stores, and sports ammenities.
For that it is important to consider these missing functions in project design.




URBAN FUNCTIONAL  MAP

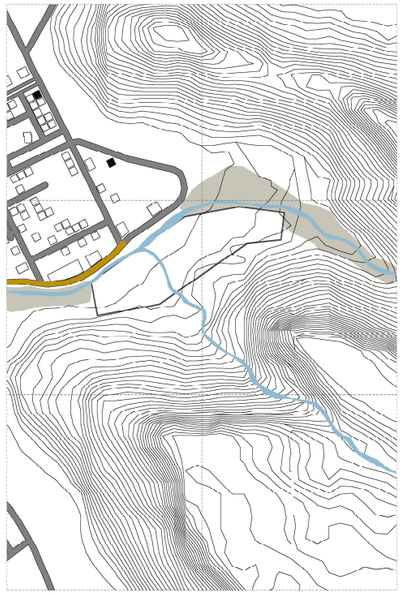
For phase 1 in design approach , it is important to consider the natural surrounding constraints that will affect the project .
Diagram 1 shows “sun and wind study” affecting building orientations and openings for shading and airflow.
Diagram 2 shows “natural hazardous constraints” blending into site which may cause potential deformations in design strategies.

SUN - WIND STUDY




WINDROSE

NATURAL HAZARDOUS CONSTRAINTS



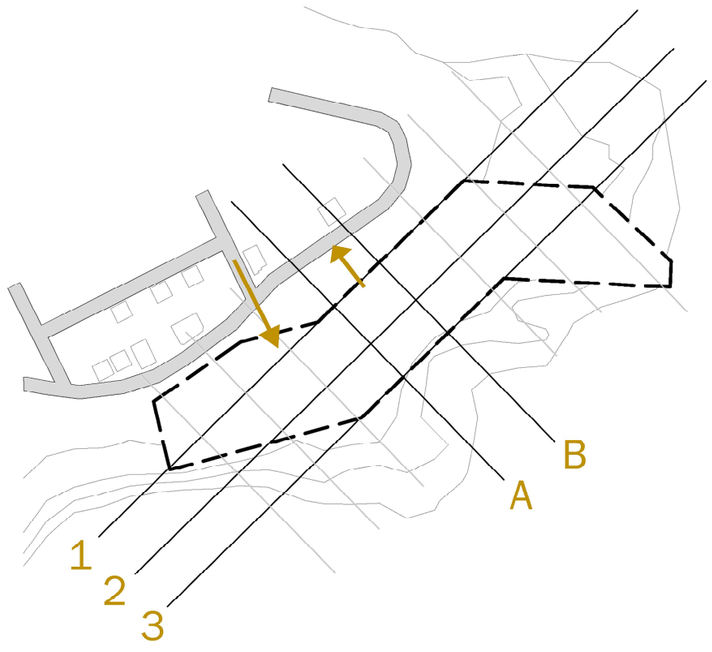
LEGEND MAPPING

- PROJECT SITE
- PRIMARY SITE ACCESSIBILITY
- POTENTIAL RIVER FLOW DURING WINTER
- POTENTIAL FUTURE GREEN OASIS
- SURROUNDING TOPOGRAPHY

## 2-CONCEPTUAL DESIGN

The following diagrams illustrates the Macro-Conceptual design steps followed inorder to attain a concrete architectural design as a final result embracing the natural topography as well as respecting site surroundings.

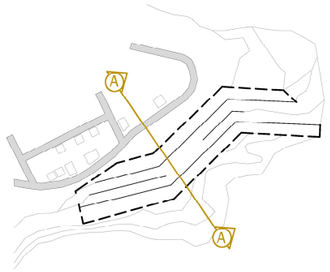
### 1 GRID AXES - PRIMARY & SECONDARY

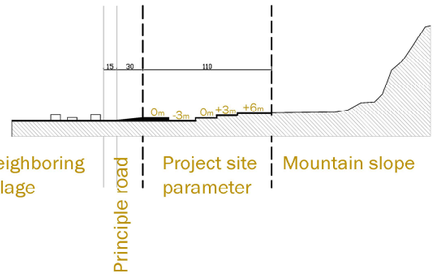



DESCRIPTION

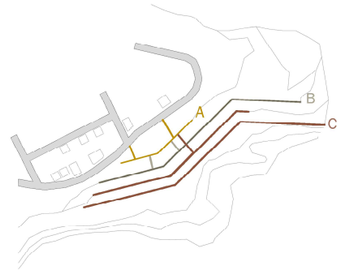
A,B,1,2,3 ARE THE MAIN GRIDS DERIVED FROM SURROUNDING CONSTRAINTS WITH RESPECT TO TOPOGRAPHICAL DIFFERENT LEVELS

### 2 LAND MODIFICATION & 4 LEVELING DESIGN




### 3 PEDESTRIAN AND VEHICULAR ACCESSIBILITY



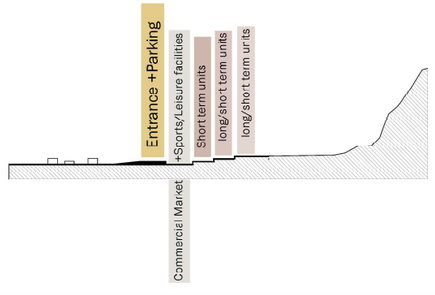

A -HIGHLIGHTS VEHICULAR PARKING AND MAIN DISTRIBUTION AREA

B- HIGHLIGHTS PEDESTRIAN COMMERCIAL & LEISURE ZONE PATH ACCESS

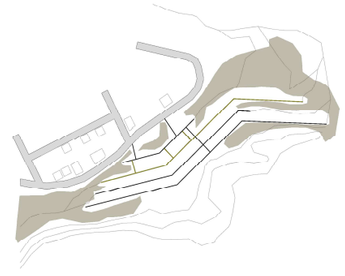
C-HIGHLIGHTS PEDESTRIAN RESIDENTIAL ZONE PATH ACCESS

### 4 ZONING






### 5 SITE INTEGRATION WITHIN LANDSCAPE

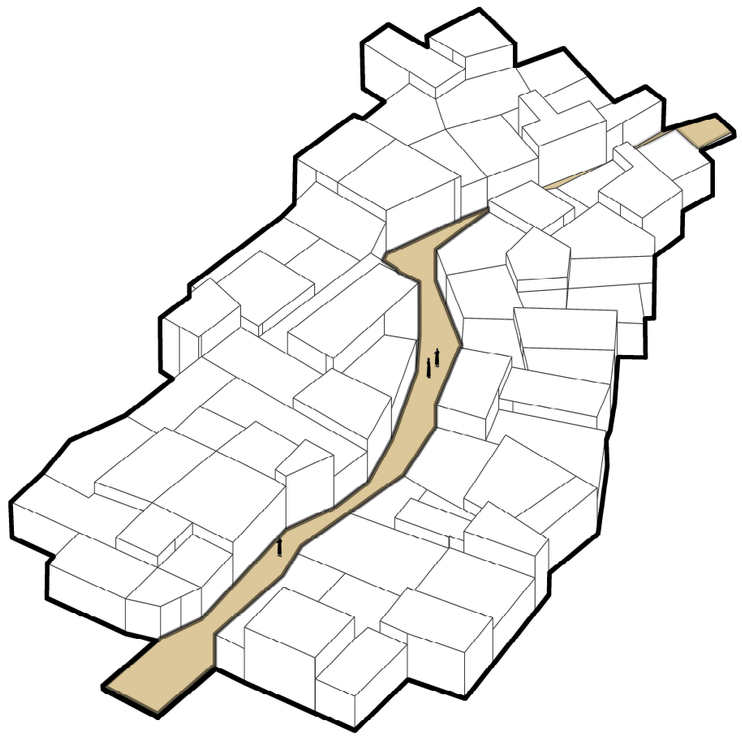


PENETRATION OF SURROUNDING GREEN OASIS LANDSCAPE WITHIN PROJECT

## 2-CONCEPTUAL DESIGN

### SEEKA - In Alula Old town

The following diagrams illustrates Seeka  alleyways , one of the 3 most important features in saudi architecture within communities and vernacular villages.
Because of its narrow alleyways designed between housing units within the heart of the villlages, it provides:
-heat control (by minimizing sunlight impact on pedestrian streets)
-Ventilation (its confined space creates a wind tunnel channeling natural cooling
-Community bonding and gathering

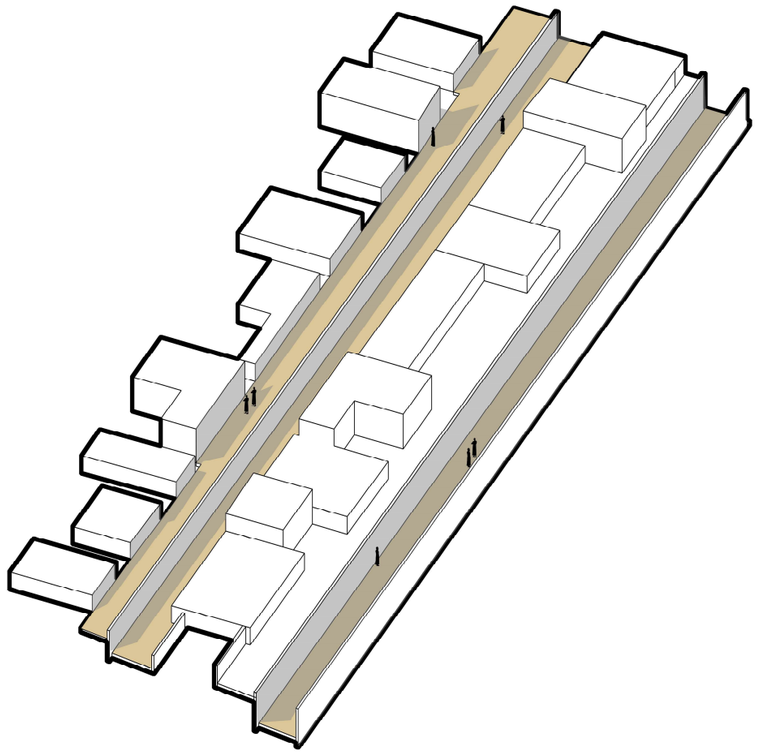






### SEEKA - In Project

In addition Seeka alleyways is adapted in my project in a linear form prioratizing easy accessibility, safety and security, as well preserving the cultural and aesthetic value of alleyways being shaded by dense residential units as well as thick walls ,all made of local materials

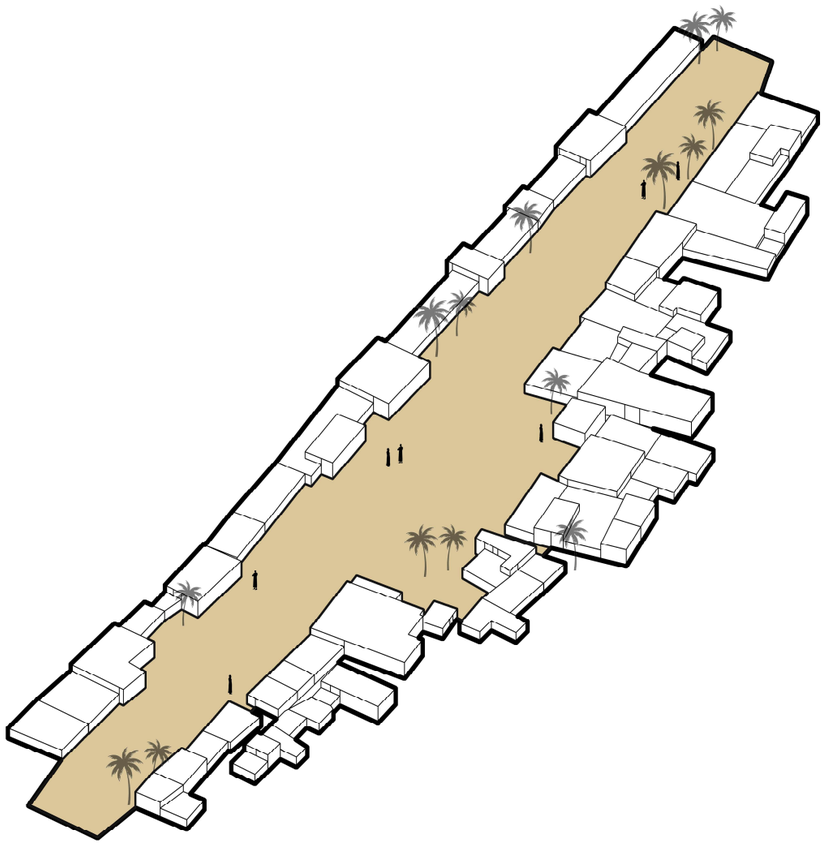


Chapter 3
Project Design

## 2-CONCEPTUAL DESIGN

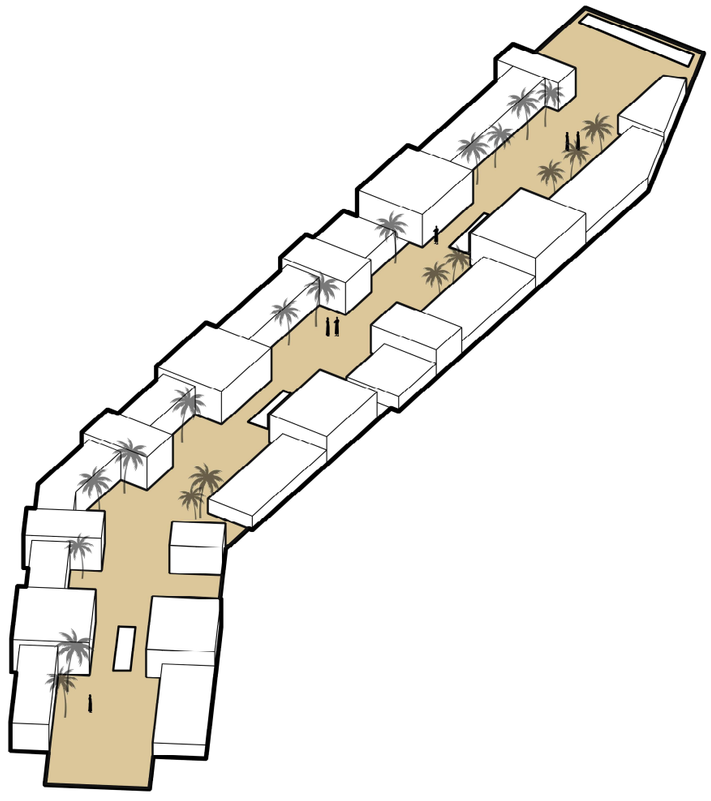
### COURTYARD - In Alula Old

The following diagrams illustrates Alula old town’s courtyard being a part of the local market street .
The unique characteristics of a courtyards within community markets :
-Provide historical and symbolic significance
-Open design encourages cool air circulation enhancing consumer comfort
-Provide additional spaces for market stalls and community activites



### COURTYARD - In Project

Within the project design some important elements are to be added to the courtyard integrated within market place ,inorder to offer a visual and spacial break,hence blending shading structures and natural features such as:
-Water features(fountains-ponds)
-Trees & greenery
-Wooden &fabric shade structures

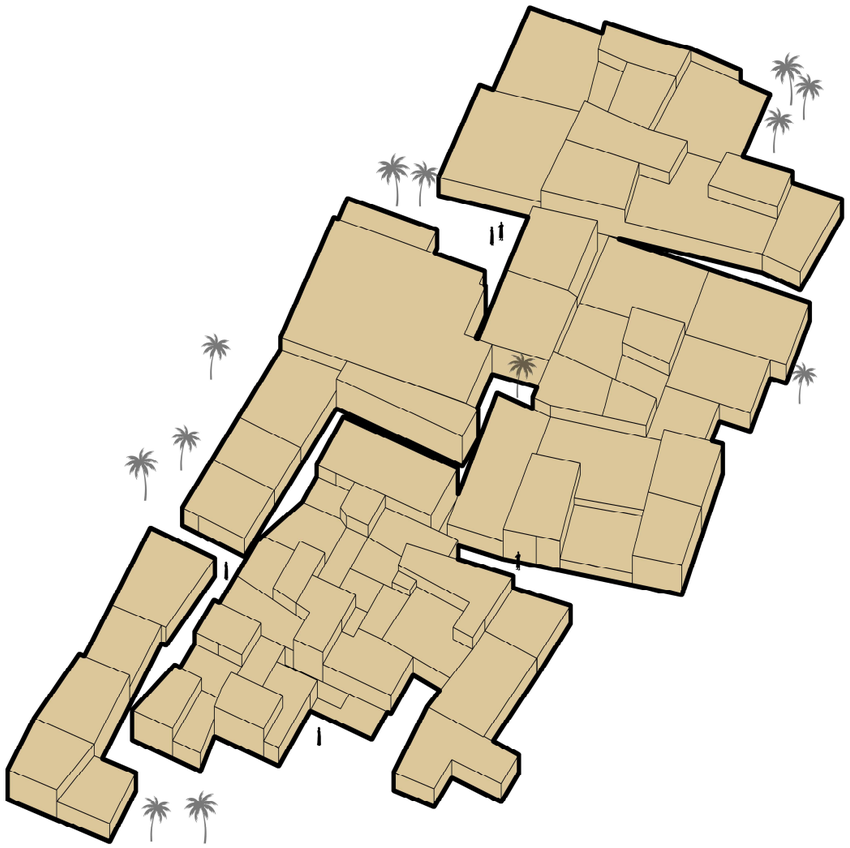


Chapter 3
Project Design

## 2-CONCEPTUAL DESIGN

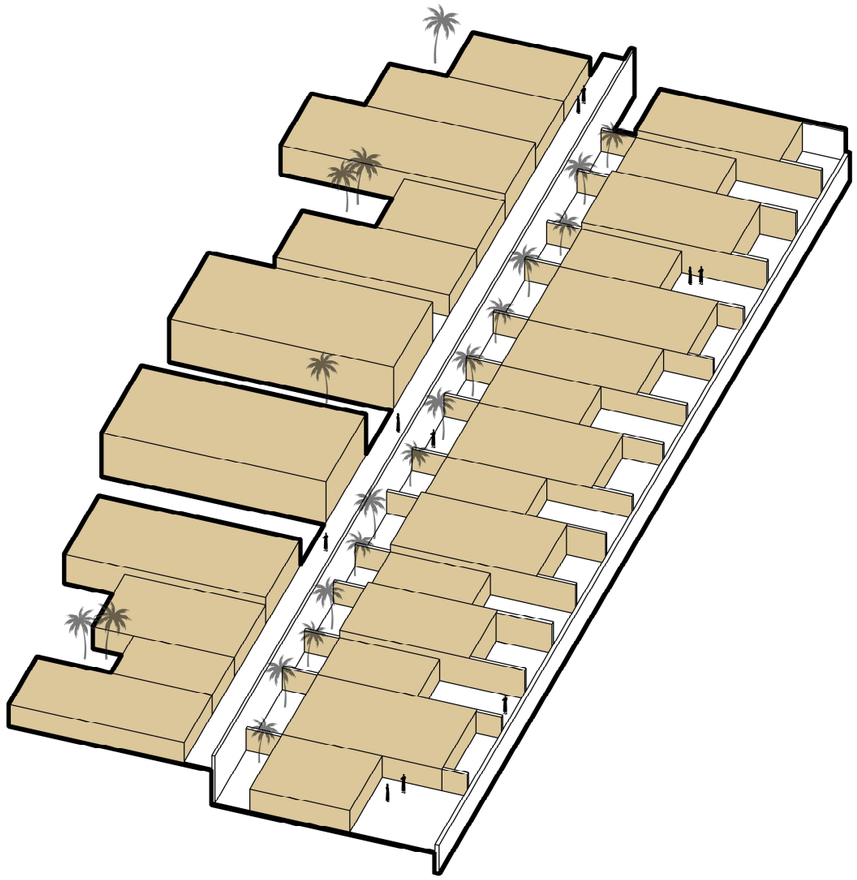
### Residential Units- In Alula Old

The following diagrams illustrates Alula old town's Residential units ,a unique form of architecture which helped locals survive for decades in its harsh cot climate. The unique characteristics of such wall to wall , and difference level architecutral design helps develop Thermal perforance by reducing sunlight exposure on building surfaces hence creating a cooler microclimate . Nevertheless such design helps protection against windbreaks and sandstorms



### Residential Units - In Project

Inspired by Alula Old town's technique this project reflects the local vernacular architecture by its wall to wall architecture technique while using its local materials leading to sustainable project goals:
-Decreasing energy use
-Preserving/Reviving local architecture while providing cultural experiences
-Providing privacy for residential units as per local culture



Chapter 3
Project Design

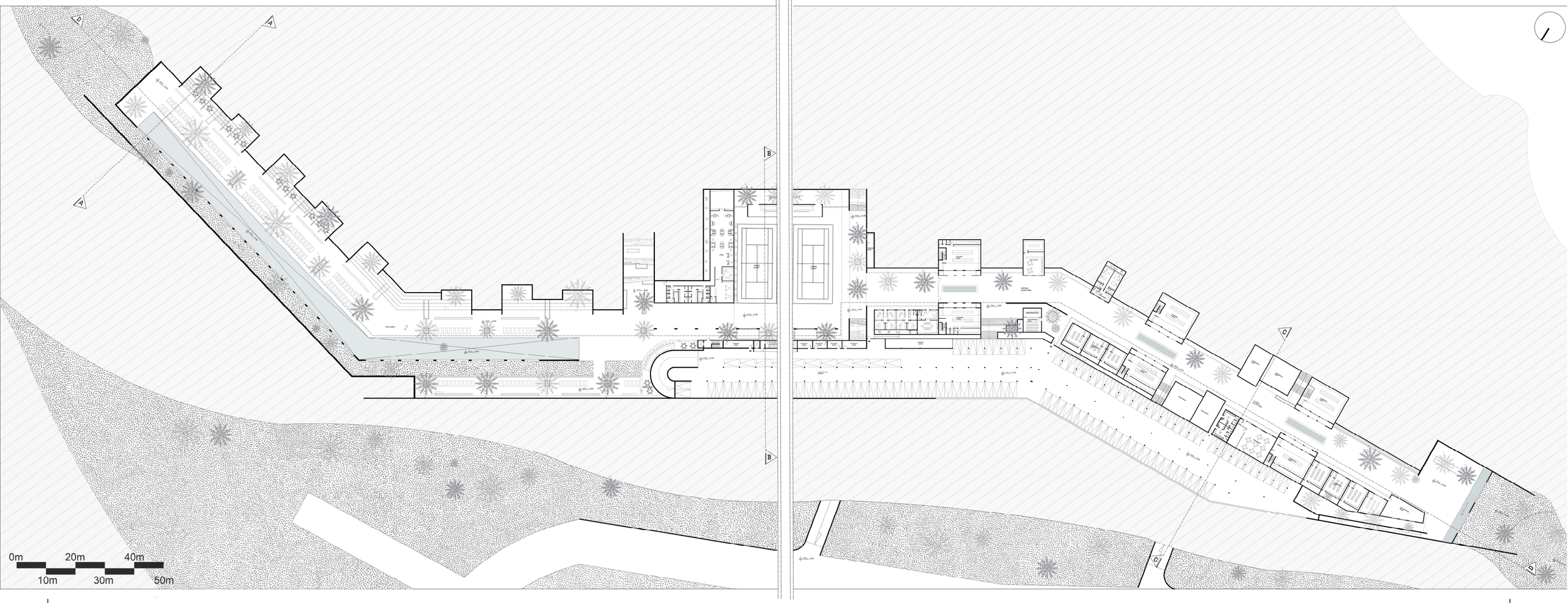
## 3- PROJECT DESIGN




MASS PLAN

Chapter 3
Project Design

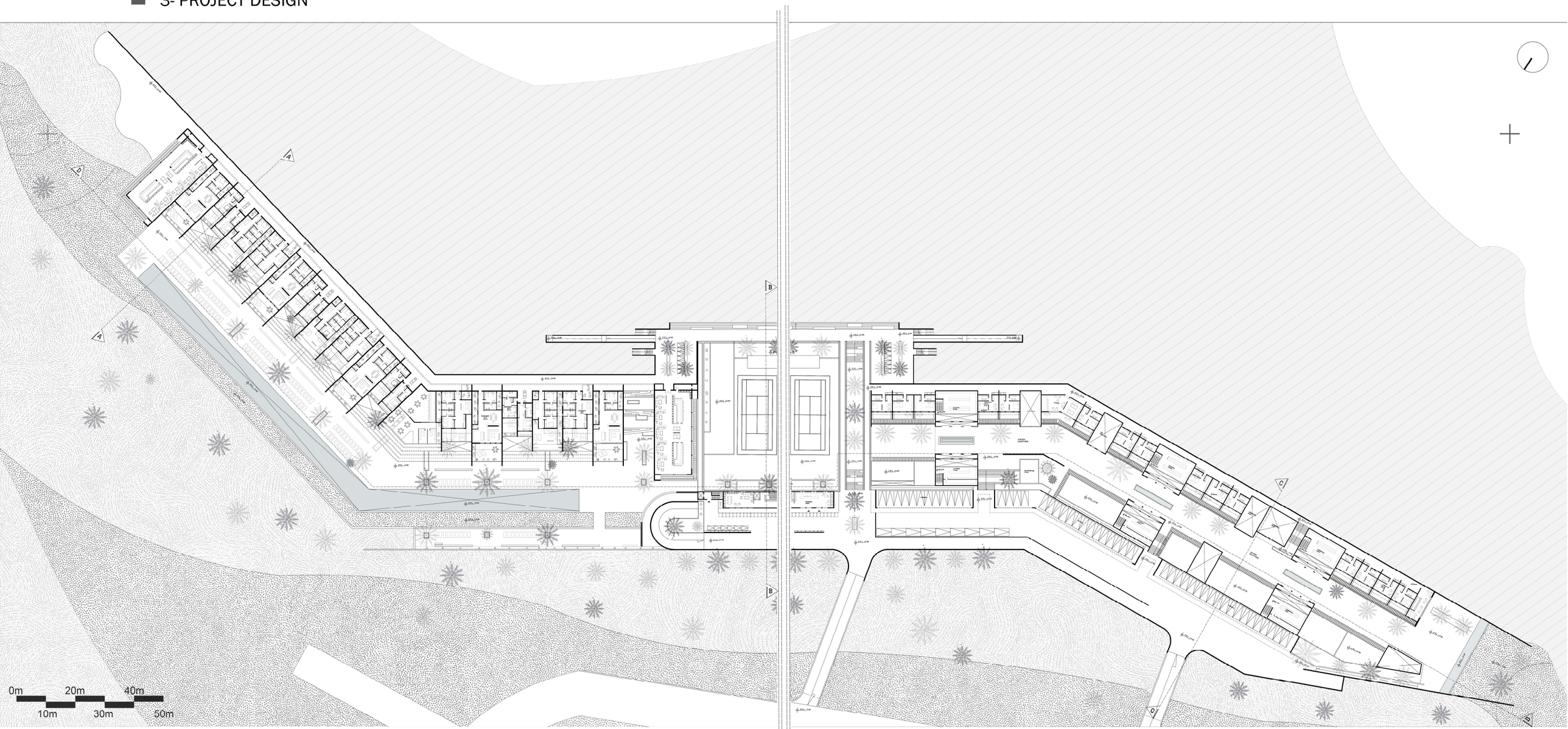
## 3- PROJECT DESIGN




Plan Level -3.00

Chapter 3
Project Design

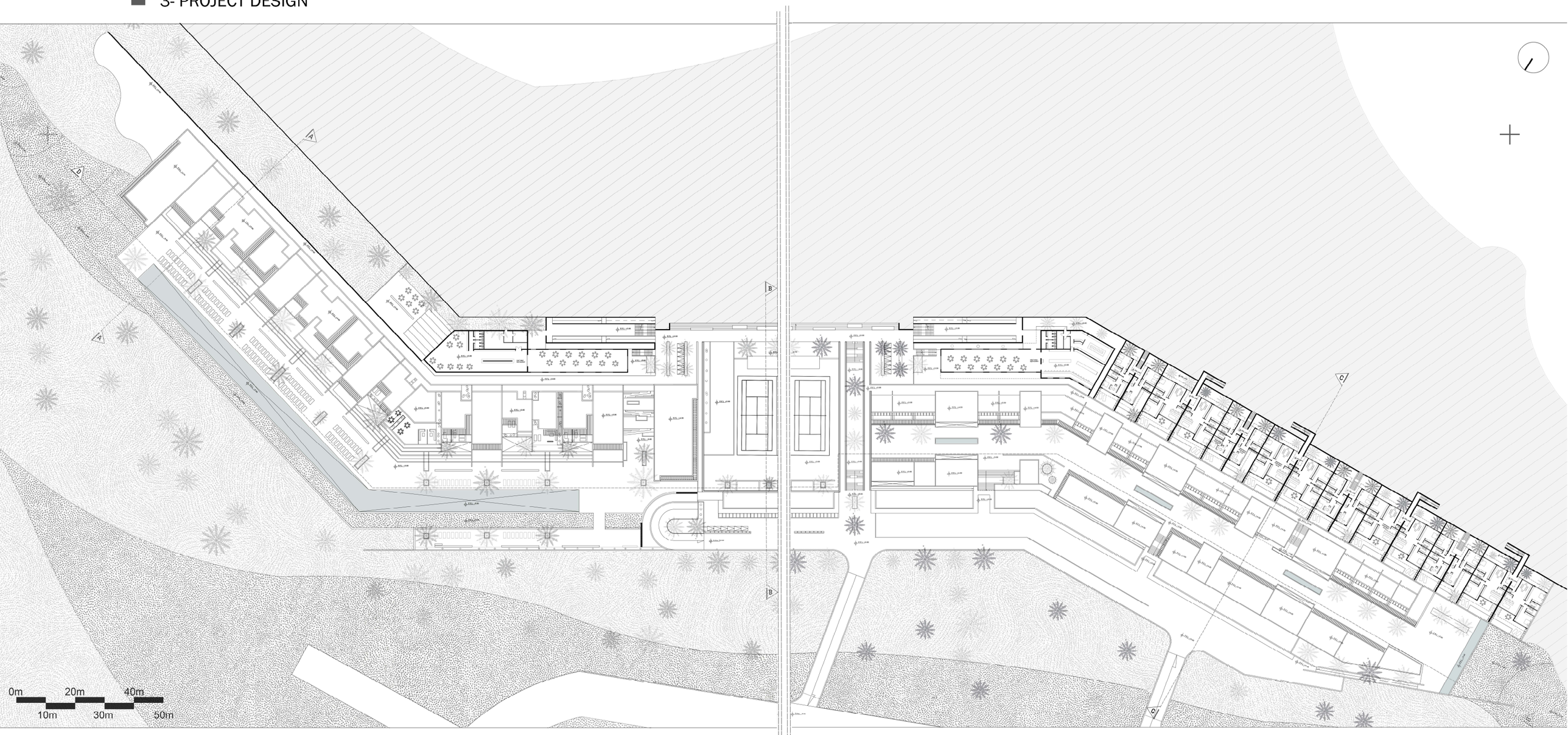
## 3- PROJECT DESIGN




Plan Level +0.00

Chapter 3
Project Design

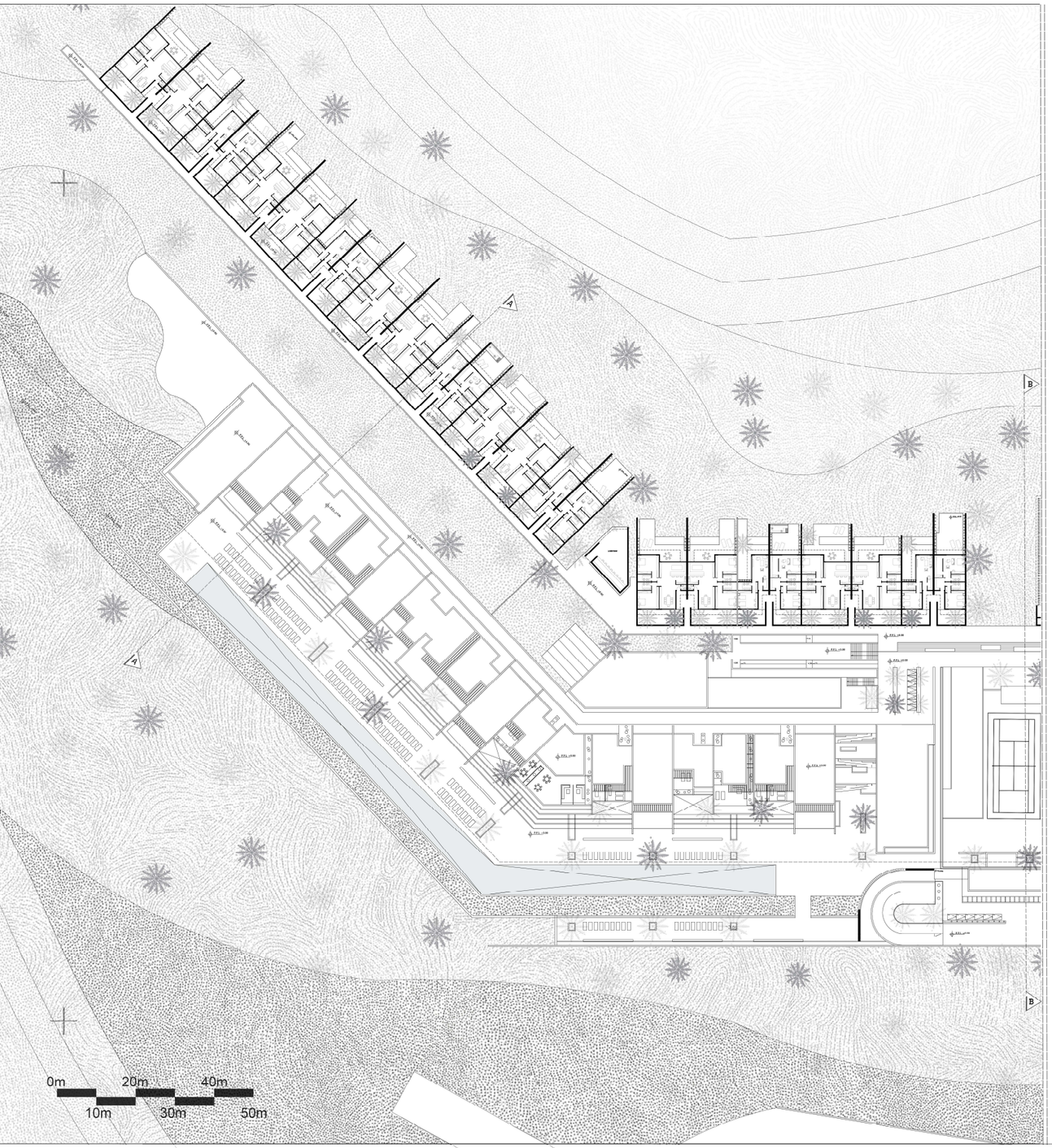
## 3- PROJECT DESIGN




Plan Level +3.00

Chapter 3
Project Design

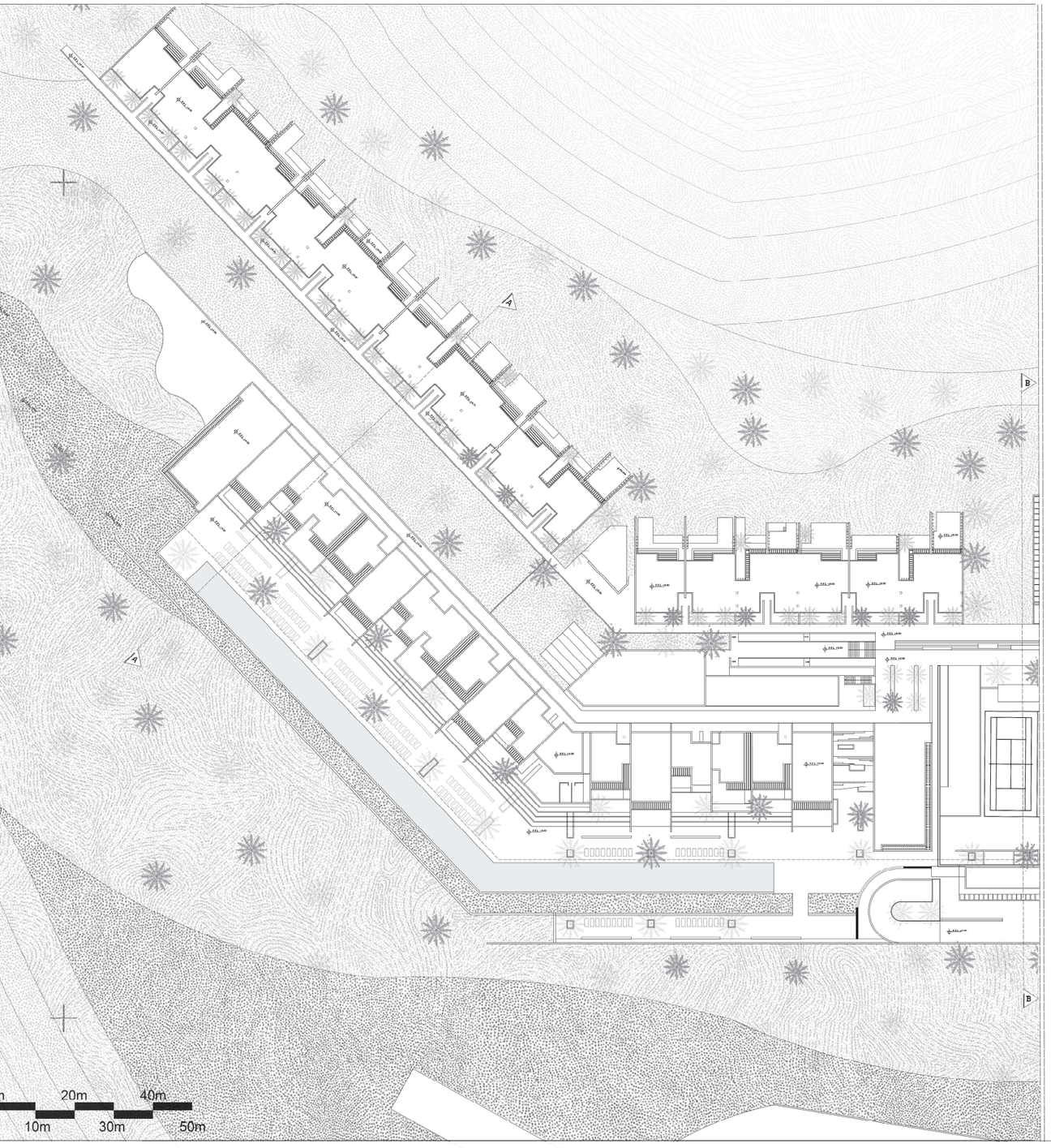
## 3- PROJECT DESIGN

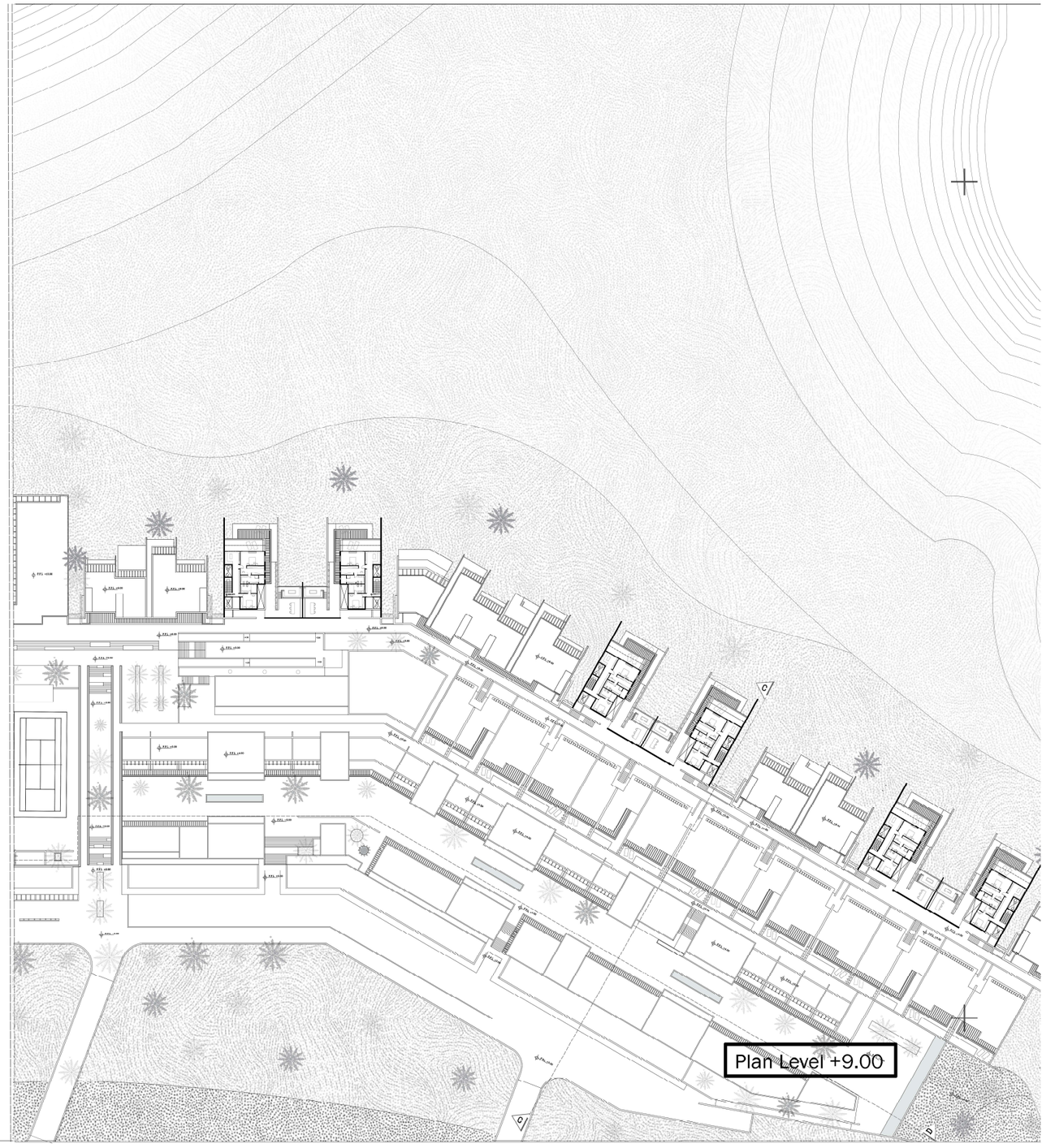





Chapter 3
Project Design

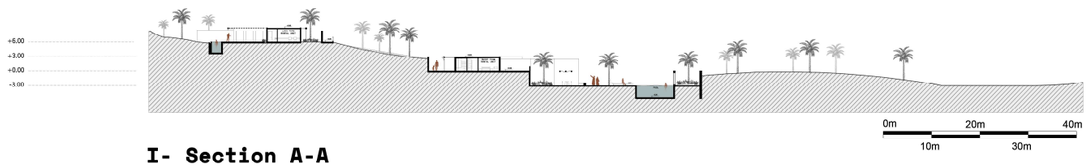
## 3- PROJECT DESIGN



Chapter 3
Project Design

## 3- PROJECT DESIGN

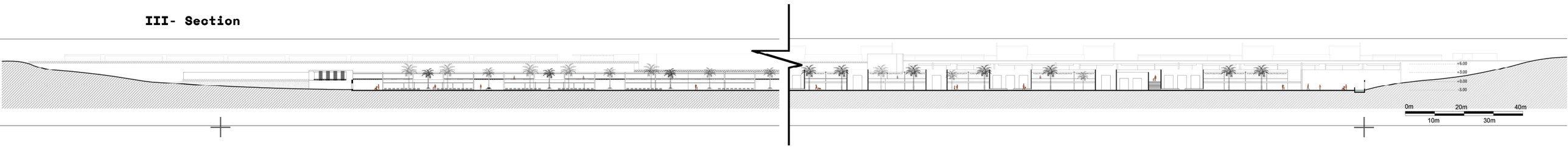



**I- Section A-A**




**II-Section C-C**

**III- Section**



Chapter 3
Project Design

## 4- PROJECT ANALYSIS

### Project  Levels & Circulation

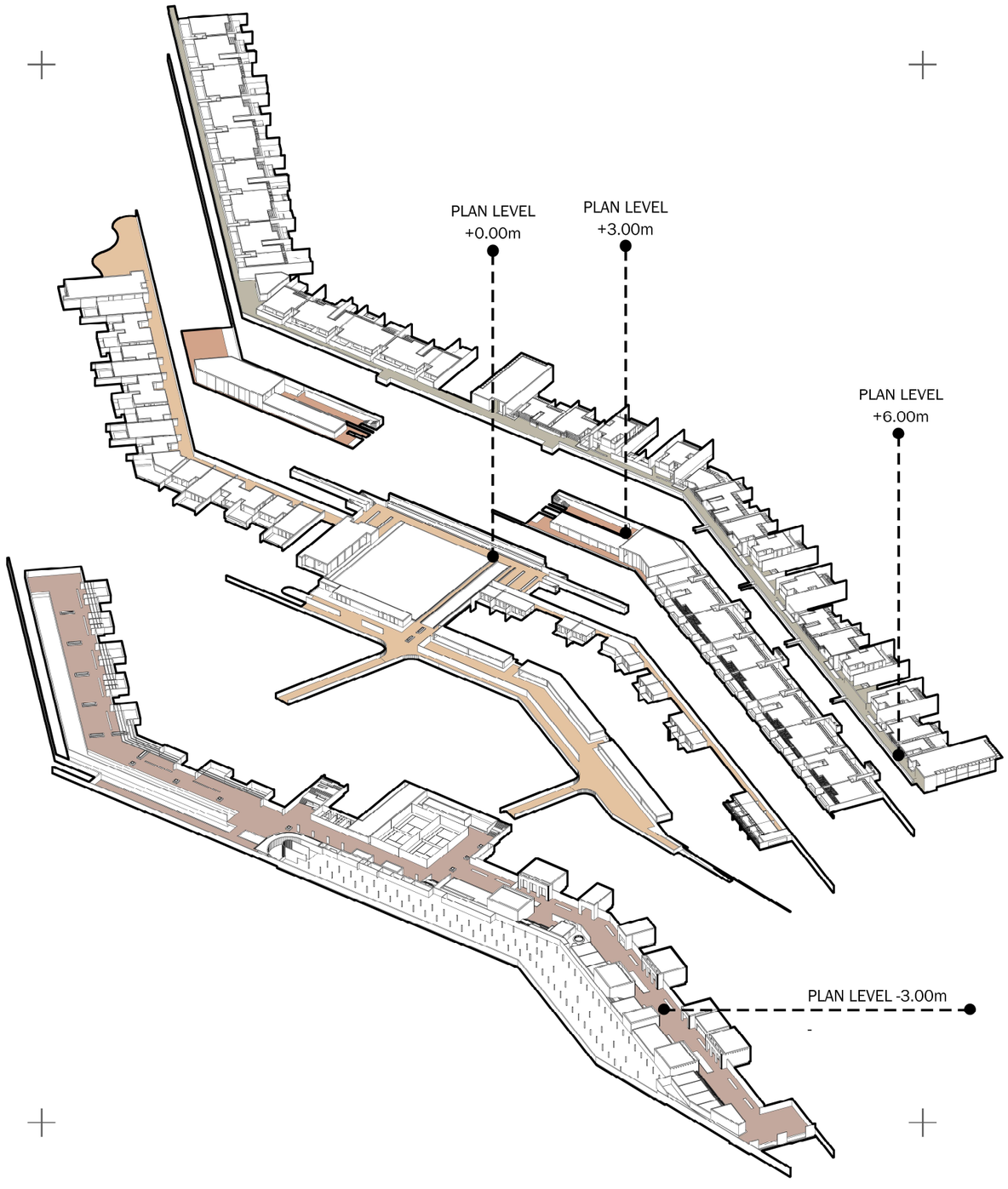
Circulation is a critical aspect for such a Contemporary Vernacular Architectural resort, as it affects functionality,experience and sustainability of the design.
The circulation implemented in the project contributes to several positive impacts as followed:

1- Zoning:proper seamsless circulation organizes spaces between public,semi-public,private zones ensurinf functionality and privacy in such hospitality project.

2- Integratiing vernacular principles:
a)”seeka” alleyways: incorporating seeka alleyways acros plans level +0.00, +3.00, and +6.00
b)Courtayrd: integrating a courtyard system within a marketplace along leisure and sports facilities at the plan level -3.00, for a confortable circulation experience

3-- Guest experience: offering a clear & comfortable naviagtion system that is easy to naviagte, as well as the easy and smooth trasition between indoors and outdoors, moreover offering scenic journeys through the integration of surrounding landscape and oasis within project .

4- Sustainability:
This project incorporates sustainability within the previous design strategies implemented ,leading to
-Logical circulation which reduces unnecessary movement,hence attaining better energy management
-Natural shading and ventilation within seeka pathways and courtyards, which reduce relience on mechanical systems.



Chapter 3
Project Design

## 4- PROJECT ANALYSIS

### Project  Levels & Circulation

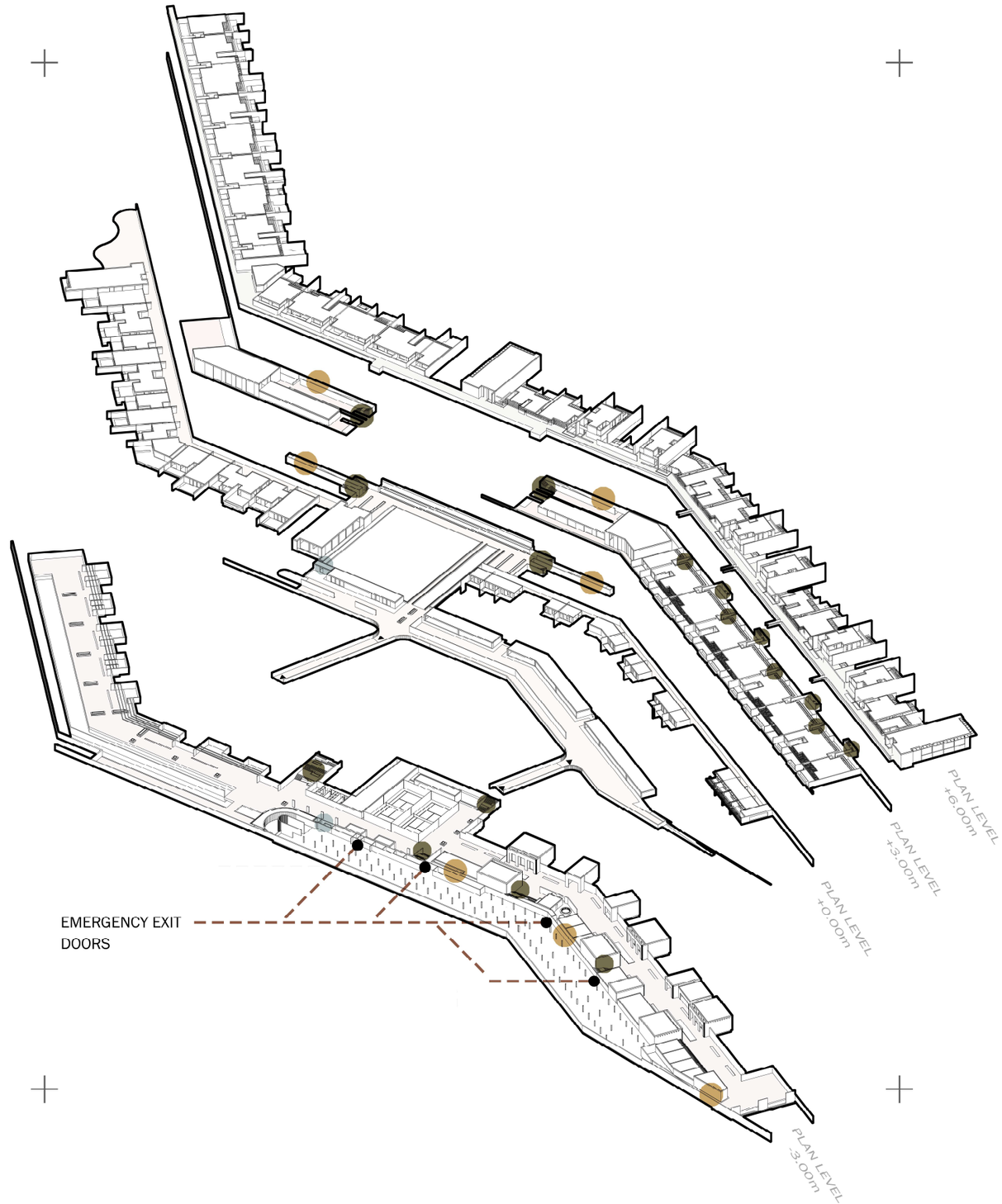
Circulation is a critical aspect for such a Contemporary Vernacular Architectural resort, as it affects functionality,experience and sustainability of the design.
The circulation implemented in the project contributes to several positive impacts as followed:

5- Accessibility and Inclusivity:
Insuring accessibility to all people “specially people with Disabilities”,hence designing multiple modes of circulation such as :
-Ramps (following ADA standards,with slope ratio 1:12)
-stairs
-Lift
-pedestrian pathways
-bike+golf cart routes
-Vehicular routes

6-Safety &Emergency Considerations:
The easy Linear circulation paths helps prevent confusion during evacuation and ensures safety .
it is important to always have several public indoor emergency exists helping prevent danger  and ensures safety

**Main features :**

-Parking Emergency Exits
-Ramps for Disabaled people
-STAIRS acessing private ,semi-private, and public spaces
-Elevator
-Linear alleyways for enhanced accessibility and safety evacuation



Chapter 3
Project Design

## 4- PROJECT ANALYSIS

### Project Program + Zoning

This Project covers a plot area of around 48,000m2, distributed into 3 zones :

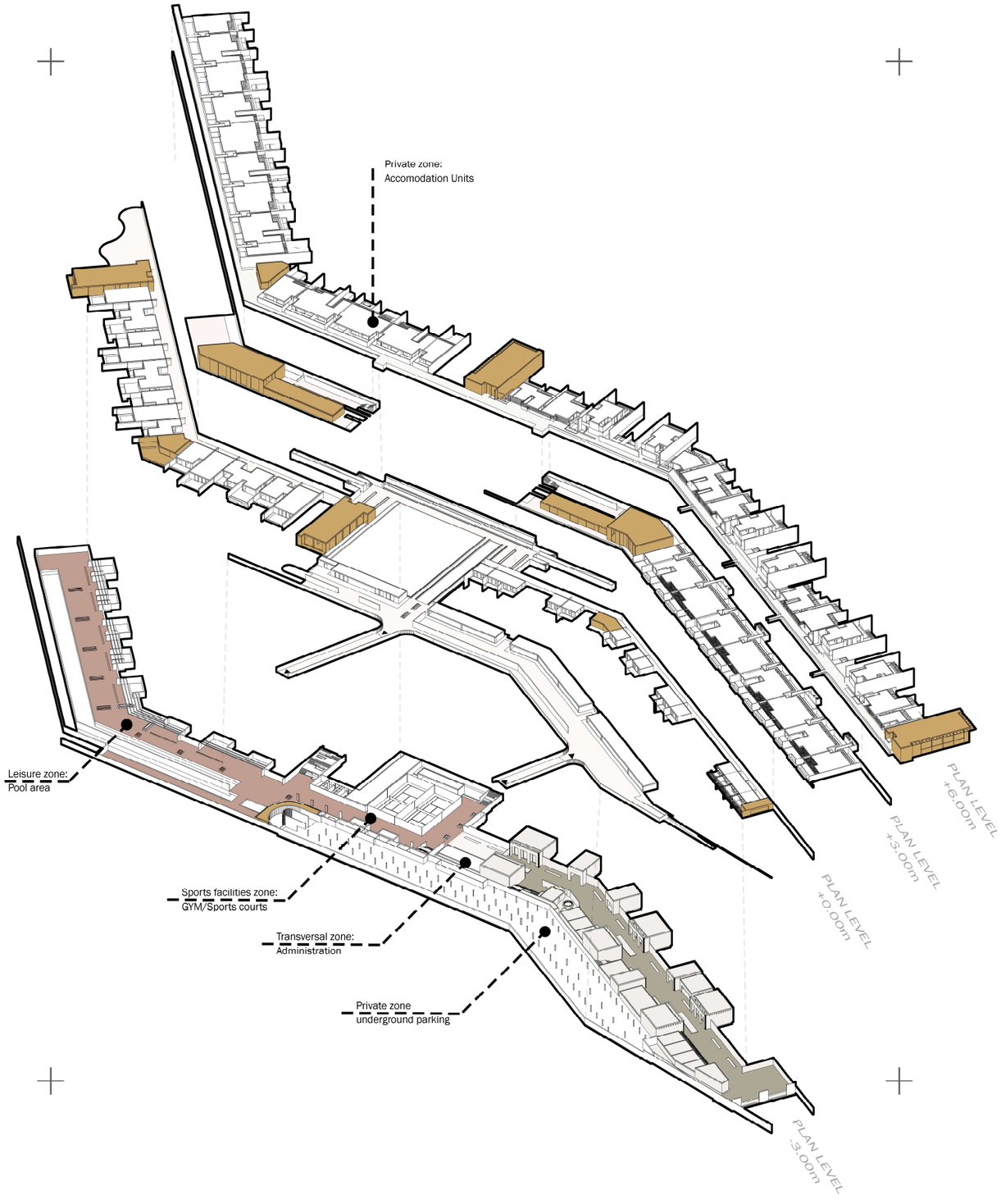
1) Private zone( includes levels +0.00,+3.00, and +6.00)having 3 main Functions:
-Long term accomodation units
-Short term accomodation units
-meeting spaces,restaurants,lobbys,entertainment area

2) Semi-private zone (refers to level -3.00m leisure and sports facilities):
-Pool area
-Restaurant
-Gym
- x2 Sports courts
-Administration
-Underground Parking

3) Public zone (refers to a marketplace at the level of -3.00m):
-Commercial shops
-wellness &service shops
-Restaurants & coffee shops

**Main features :**

-Private areas :long term/short term rental accomodation units
-Private Meeting spaces: Restaurants/ lobbys/ entertainment areas
-Public Commercial zone:Market place
-Semi-public Leisure & sports facilities zone



Chapter 3
Project Design

## 4- PROJECT ANALYSIS

### Project Program + Zoning

The Project is designed with 3 distinct typologies with different architectural dimensions serving customer's needs: Typologies 1 and 2 features a mix of long and short term accomodation units, whereas the third typology is exclusively dedicated to short term rental units,ensuring flexibility and tailored experiences for diverse guests.

Total Accomodation units : 98
Total Short term accomodation units: 58
Total Long term accomodation units: 40

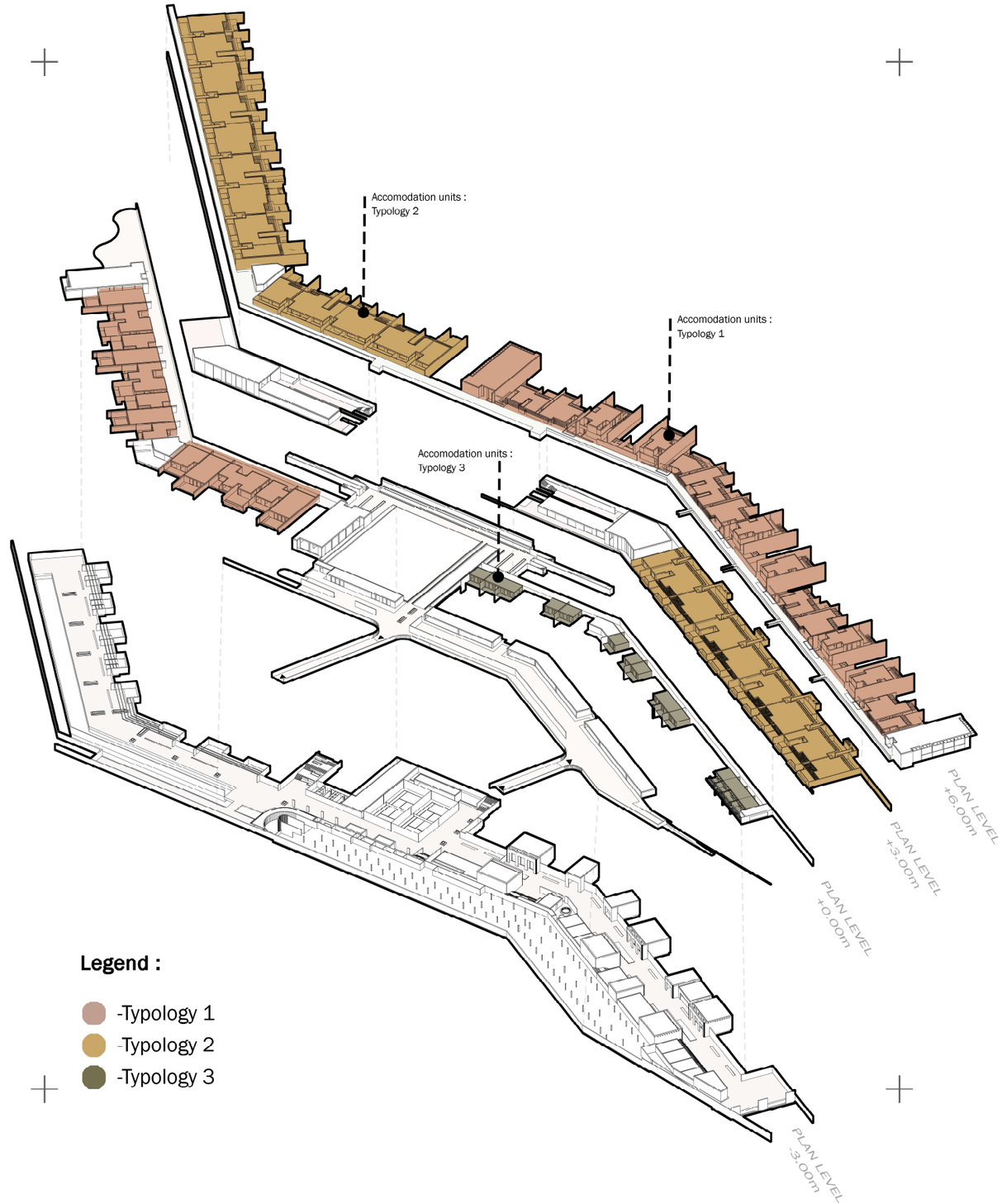
| | Typology 1 | Typology 2 | Typology 3 |
|---|---|---|---|
| Long term accommodation units | 20 | 20 | 0 |
| Short term accommodation units | 23 | 20 | 15 |
| Total | 43 | 40 | 15 |

**Density and feasbility study:**

Project plot area=48,000m2
Land area/unit = 48000m2/98 units =**490m2/unit**

**Comparative Standards**:
-Luxury resorts typically allocate 300-600m2/unit(including shared facilities,common paths,landscape,pool...)
-Compact budget friendly resorts might allocate 100 to 250m2/unit

This comparative analysis shows that the resort provides a luxury ,low-density ambiance obtimizing visitors relaxing experience and prioratizinf exclusivity and harmony with Alula's surrounding desert landscape .



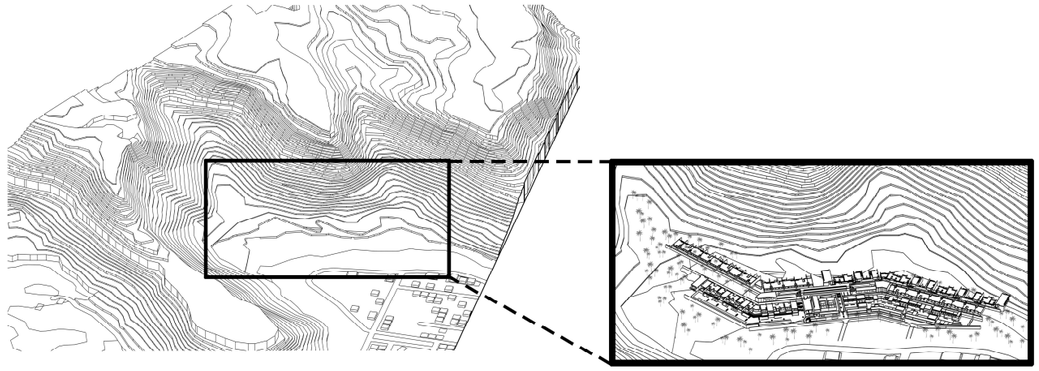
Chapter 3
Project Design

## 4- PROJECT ANALYSIS

### Project Design

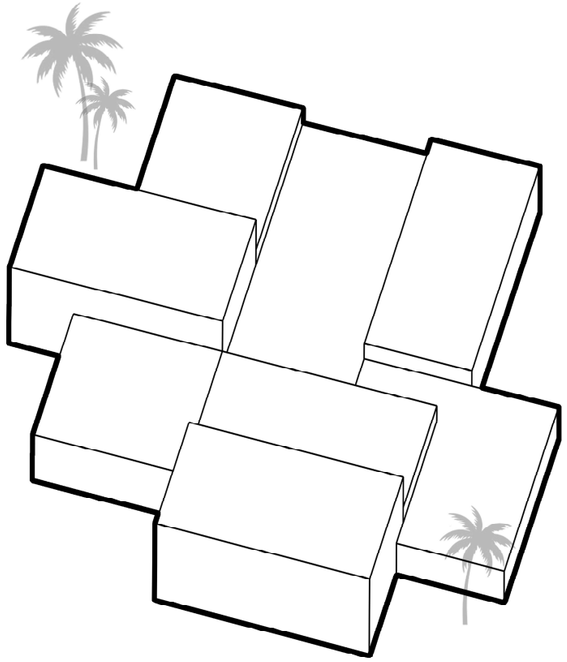
Inspired by Alula Old town’s architectutal design which adapted local climate heat for years with vernacular techniques. This conceptual design bridges historical adaptations with modern evolution, from simple unit shiftings and substractions, the project still preserves privacy , natural ventilation systems, natural zenithal light openings, as well as open views for Alulas magnificant panorama mountain views .

This conceptual design preserves Alula’s cultural identity with its cubic forms and natural materials used,which revive local history and provide visitors with an authentic experience, aligning with the Alula’s future developement goals.

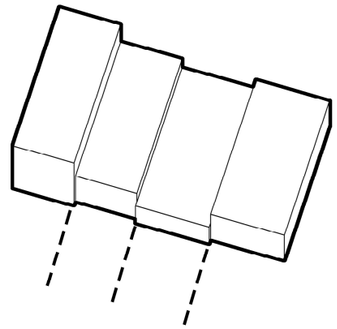


Project integration overview within site

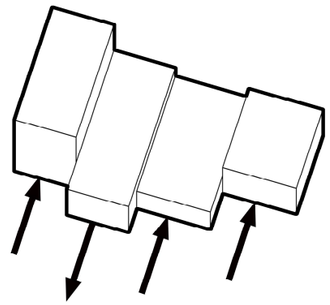
**1**
Derived from Alula old town’s architectural dispositions of residential unit blocks, designed with different horizentality and verticality , providing privacy, thermal comfort, with natural light and aeration for every unit.



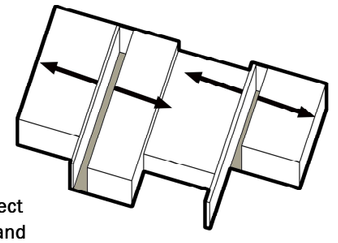
**2**
Wall to Wall unit positions for reducing sun heat on units surfaces, hence decreasing internal temperature & energy usage



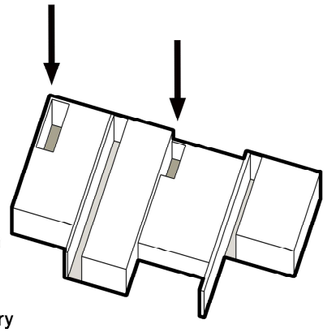
**3**
Push-Pull process for privacy and architectural integrity in site topography, while providing open views



**4**
A Contemporary solution of implementing private shaded common green spaces ,for indirect natural lighting and ventilation



**5**
Bridging interior with exterior private spaces, hence having an additional microclimate space nesseccary for every room



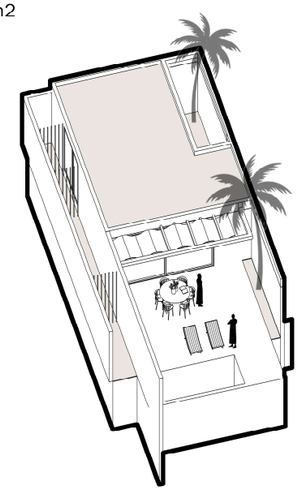
Chapter 3
Project Design

## 4- PROJECT ANALYSIS

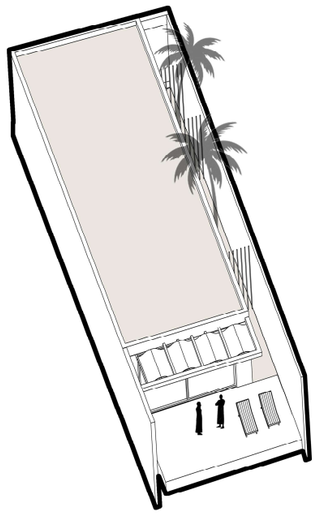
### Residentual Units : Typology 1

Inspired by Alula's old town architecture , the following units provide privacy,
sustainable characteristics for natural aeration & lighting as well as natural integration.

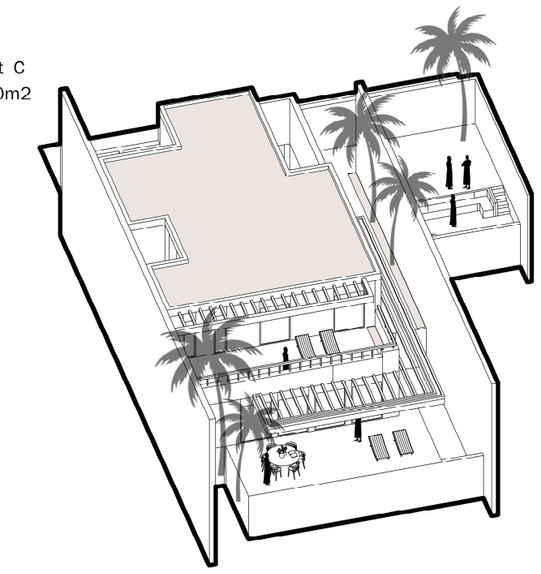
Unit A
60m2



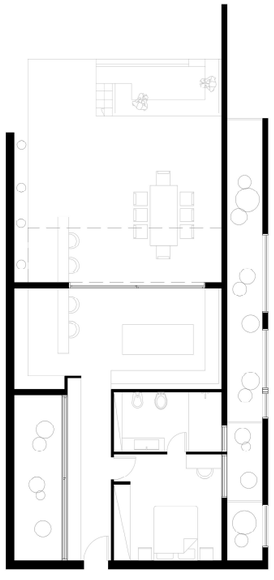
Unit B
100m2



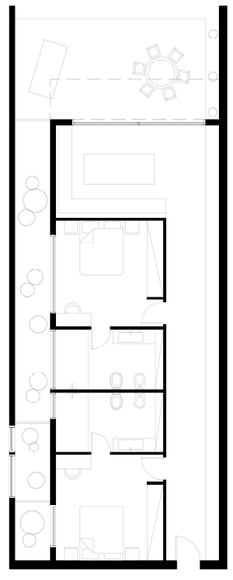
Unit C
270m2



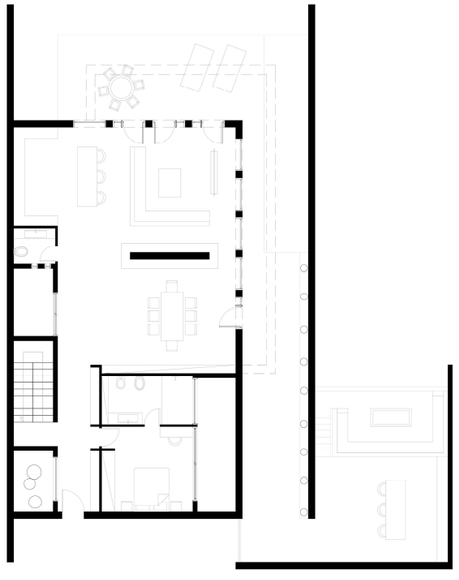
Unit A: Long term rental
60 m2



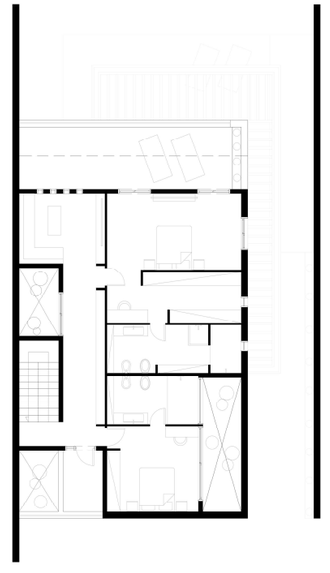
Unit B: Short term rental
100m2



Unit C: Ground Floor Plan
Long Term Rental



Unit C: First Floor Plan
Long Term Rental



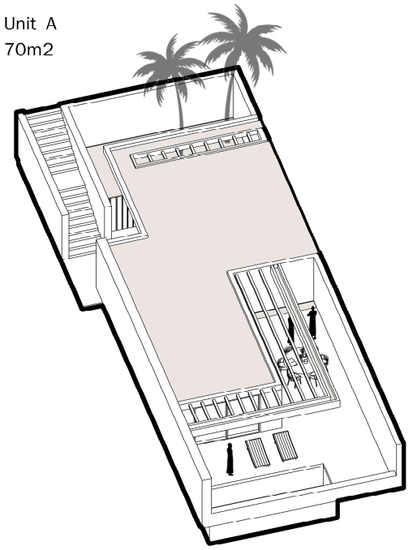
Chapter 3
Project Design

## 4- PROJECT ANALYSIS

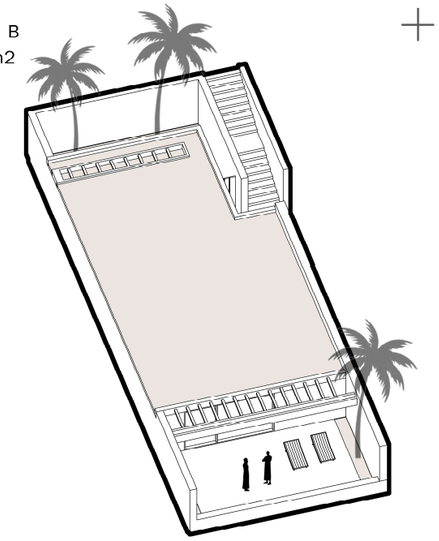
### Residentual Units : Typology 2

Inspired by Alula's old town architecture , the following units provide privacy, sustainable characteristics for natural aeration & lighting as well as natural integration.

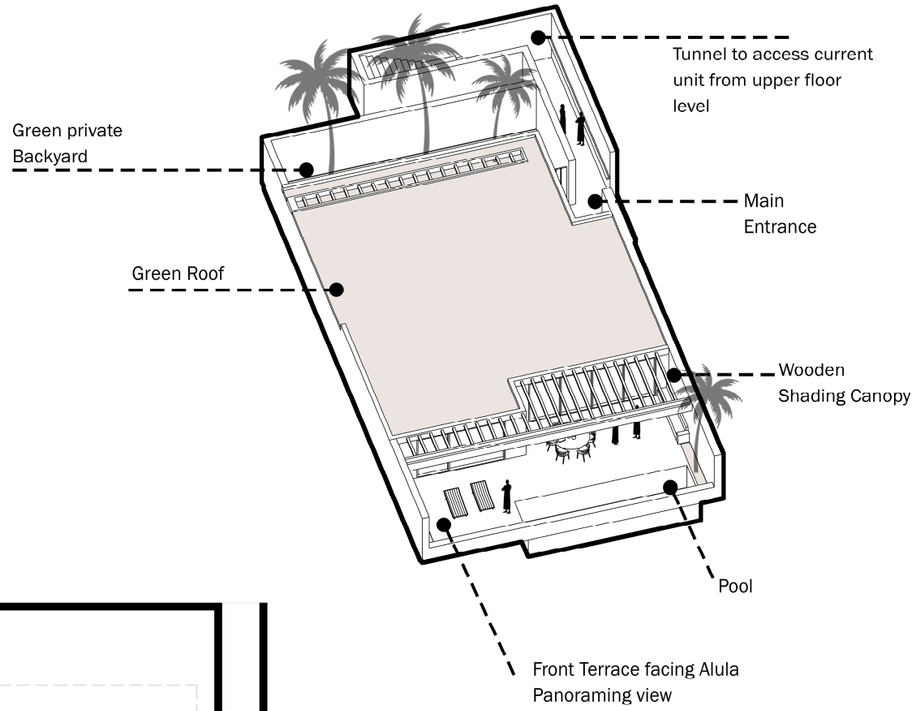
Unit A
70m2



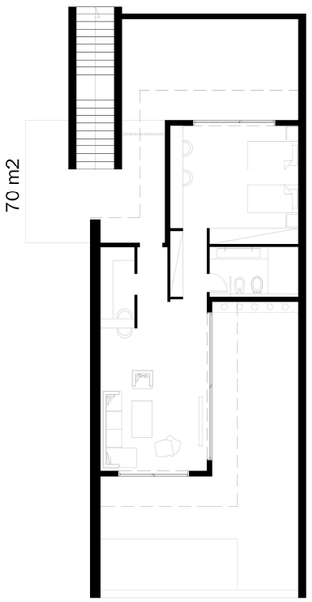
Unit B
90m2



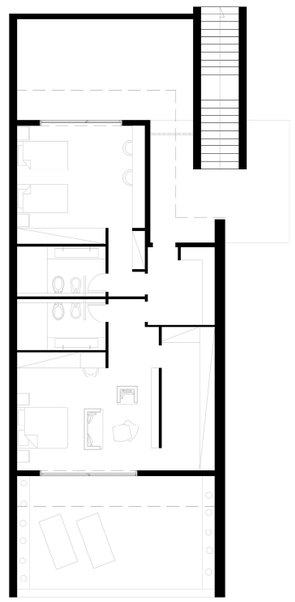
**Unit C**
**140m2**



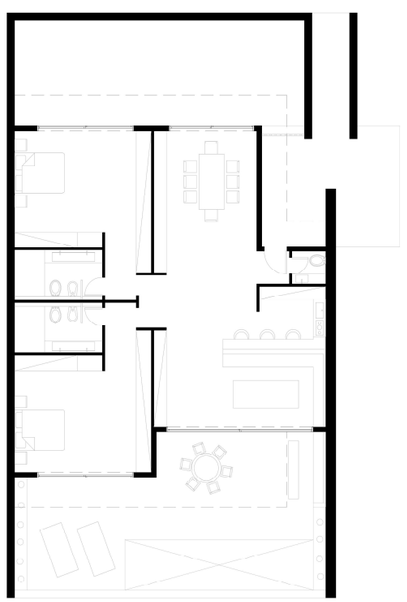

Unit A: Short term rental
70 m2



Unit B: Short term rental
90m2



Unit C: Long Term Rental
140m2



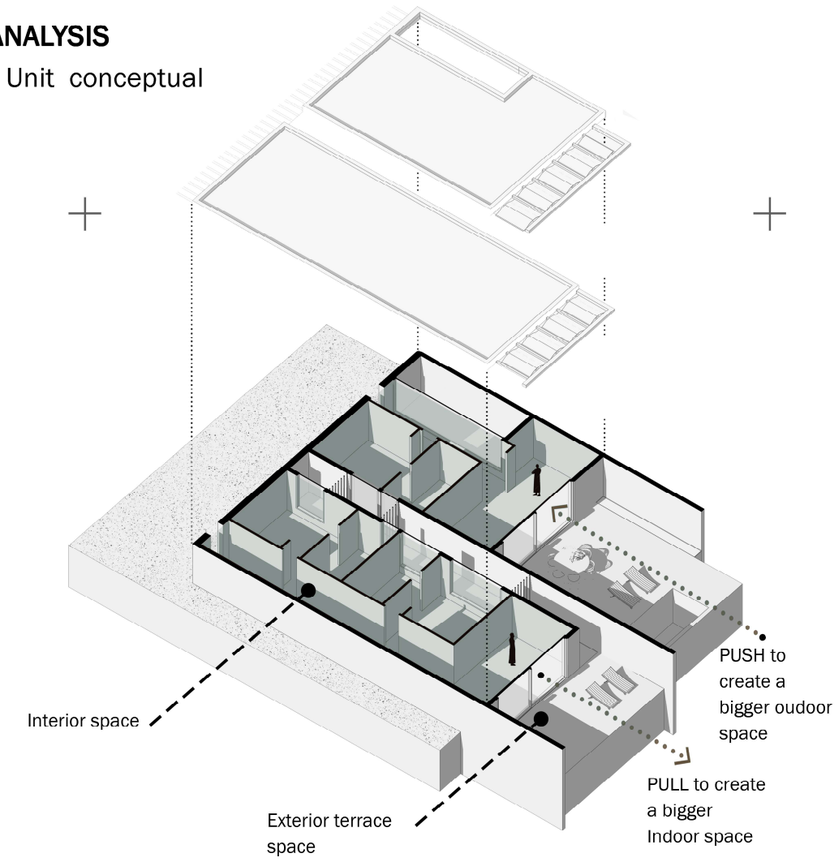
Chapter 3
Project Design

## 4- PROJECT ANALYSIS

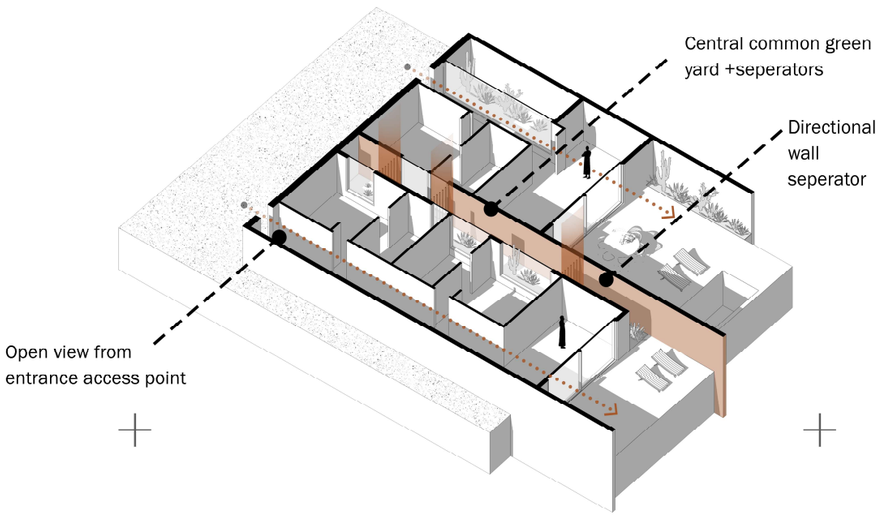
Residential Unit conceptual Analysis

Typology 1
Units B&A

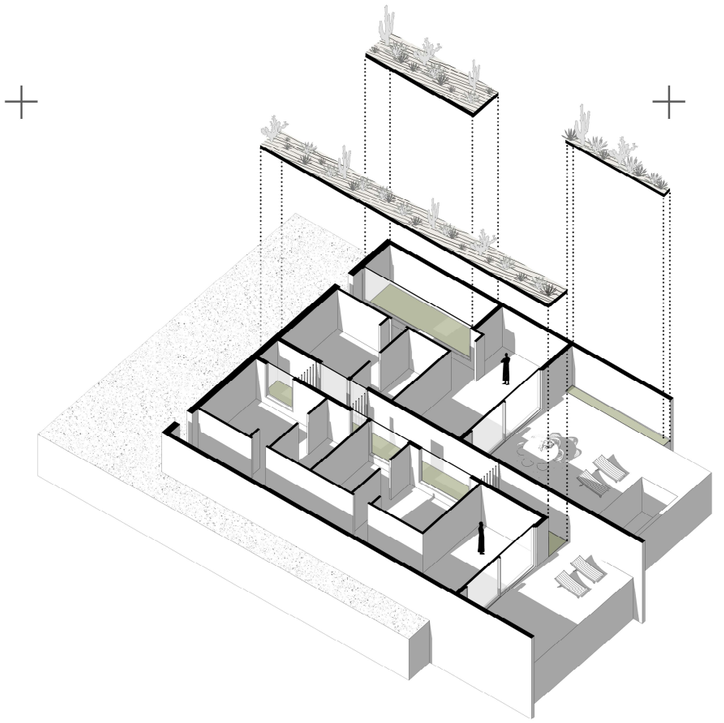
**1**
**Push-Pull effect**



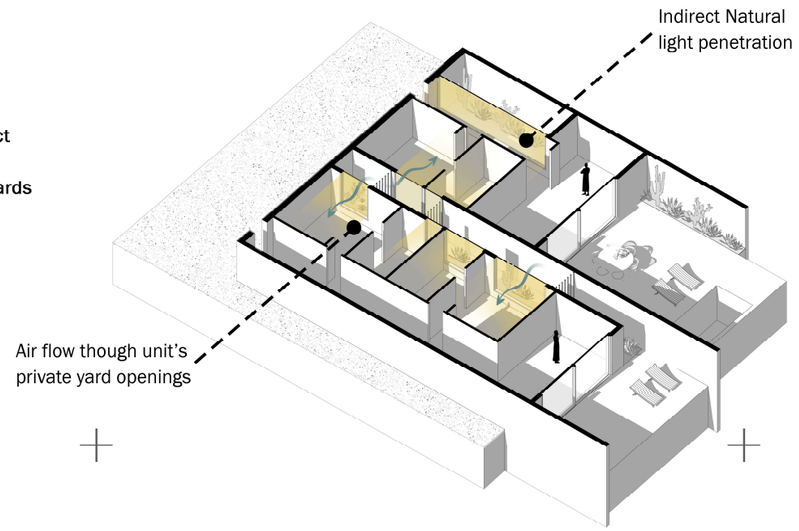

**2**
**Indoor-outdoor Transparency & Privacy control**




**3**
**Vegetation in private and common spaces**



**4**
**Microclimate effect through interior/exterior yards integration**



Chapter 3
Project Design

## 4- PROJECT ANALYSIS

### Layering

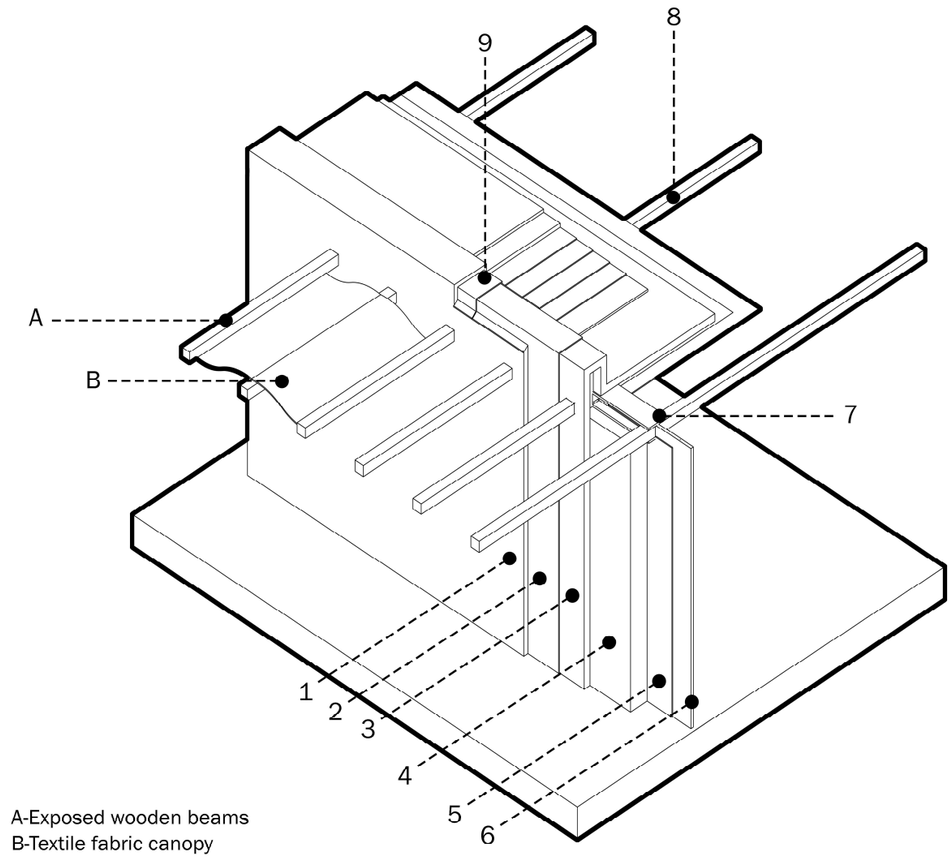
Wall layering

In a hot climate such an Alula , it is crucial to have modern interventions to vernacular construction techniques while still preserve sustainability, and minimize machinery usage emitting CO2 in every single way.
The best way to intervene is to build using local materials with local workers helping and preserving Alula's historical continuation:

For that this project preserves Alulas cultural identity through its vernacular Architecture while enhancing their way of building considering long term maintenance needs, increase thermal comfort, and waterproof enhancement.

Wall stratigraphy:

1-Clay plaster (pigmented with natural earth tones to blend with landscape)
Purpose: natural weather resistant surface/reduce erosion/protects against uv damage/humidity control/harmonize with surrounding landscape)
2-Waterproof membrane EPDM (vapor permeable)
3-Natural Thermal+Acoustic insulation(strawbale/hemp/cork)
purpose:Having high R-value insulation,providing thermal efficiency, and decreasing energy need
4-Mud-brick CSEB
(Treated durable mud-bricks using: CSEB compressed stabilized earth blocks/controlled chamber dring and curing)
5-Vapor membrane
6-Clay plaster finish (with natural fiber reinforcement as straw)
purpose: provide additional thermal insulation/humidity control/preserve natural indoor climate)
7-H-Beam (for indoor/outdoor structural wood beam fixation)
8- Structural wood beam (from local palm wood trunks)
9-metal cap




A-Exposed wooden beams
B-Textile fabric canopy

AXONOMETRICAL SECTION SCHEME

Chapter 3
Project Design

## 4- PROJECT ANALYSIS

### Layering

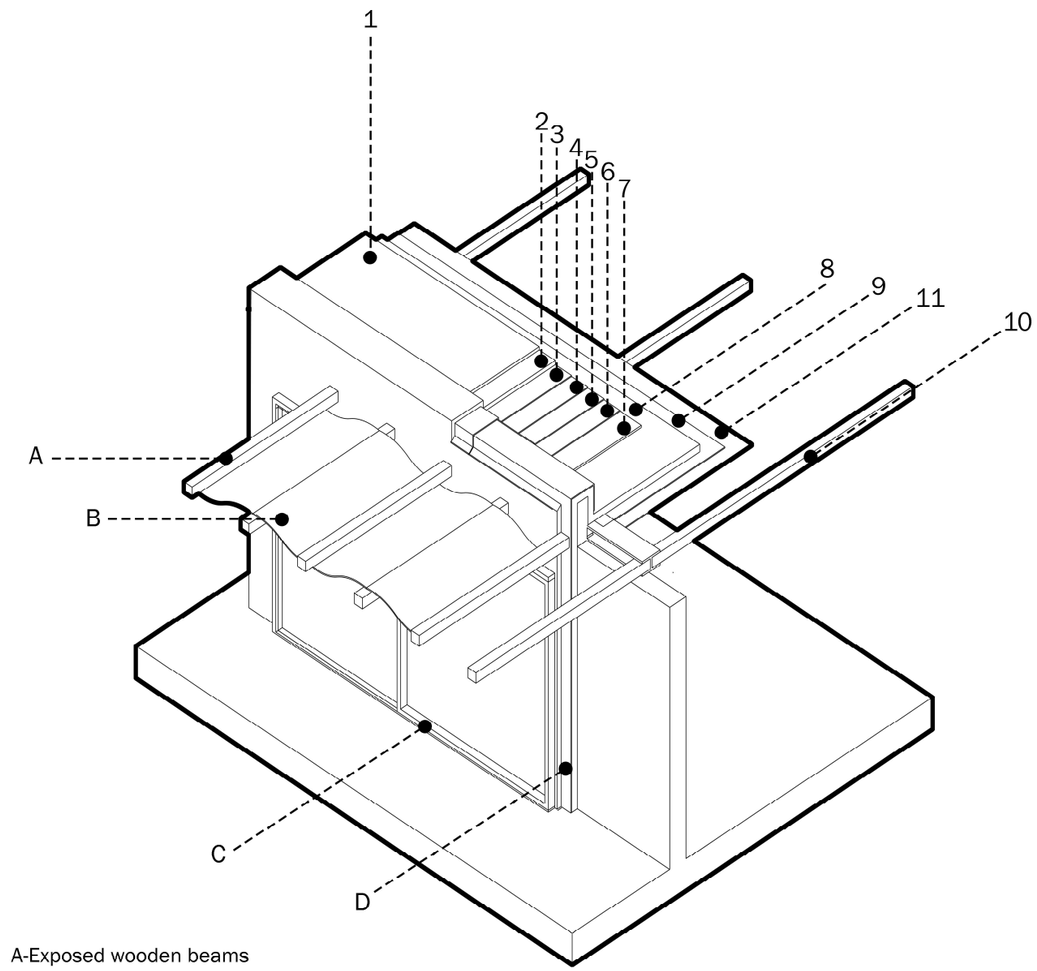
Roof layering

In a hot climate such an Alula , it is crucial to have modern interventions to vernacular construction techniques while still preserve sustainability, and minimize machinery usage emitting CO2 in every single way.
The best way to intervene is to build using local materials with local workers helping and preserving Alula's historical continuation:

For that this project preserves Alulas cultural identity through its vernacular Architecture while enhancing their way of building considering long term maintenance needs, increase thermal comfort, and waterproof enhancement.

Roof stratigraphy:

1-Sand +engineered soil
2-Gravel (for water runoff)
3-UV-resistent Geotextile layer
4-Drainage board + root barier
5-waterptoof membrane (EPDM)
6-Thick natural clay (for acoustic insulation)
7-thermal insulation of local materials:straw bale,or cork,or hemp fiber (Considering high R-value insulation,providing thermal efficiency &reducing energy need)
8-Vapor retarder
9-wood panel
10- local wood structural beams
11-finishing layer (Optional, according to design:clay plaster, or exposed wooden structure)




A-Exposed wooden beams
B-Textile fabric canopy
C-Wooden/metal frame
D- Natural Clay wall finishing

AXONOMETRICAL SECTION SCHEME

Chapter 3
Project Design

## 4- PROJECT ANALYSIS

### Project Colors & Materials

Incorporating Alula's harmonious materials and color palette, is a deliberate architectursal strategy to achieve contextual harmony.
Such technique has several postive factors such as:
-Preserving cultural authenticity
-Reinforcing vernacular identity by establishing a dialogical realtionship between the built environment and Alula's natural landscape

This ensures that the project resonates with Alula's cultural and environmental setting.

## Project Render

Showing color palette & material usage within project design



## Dominant color palette & materials

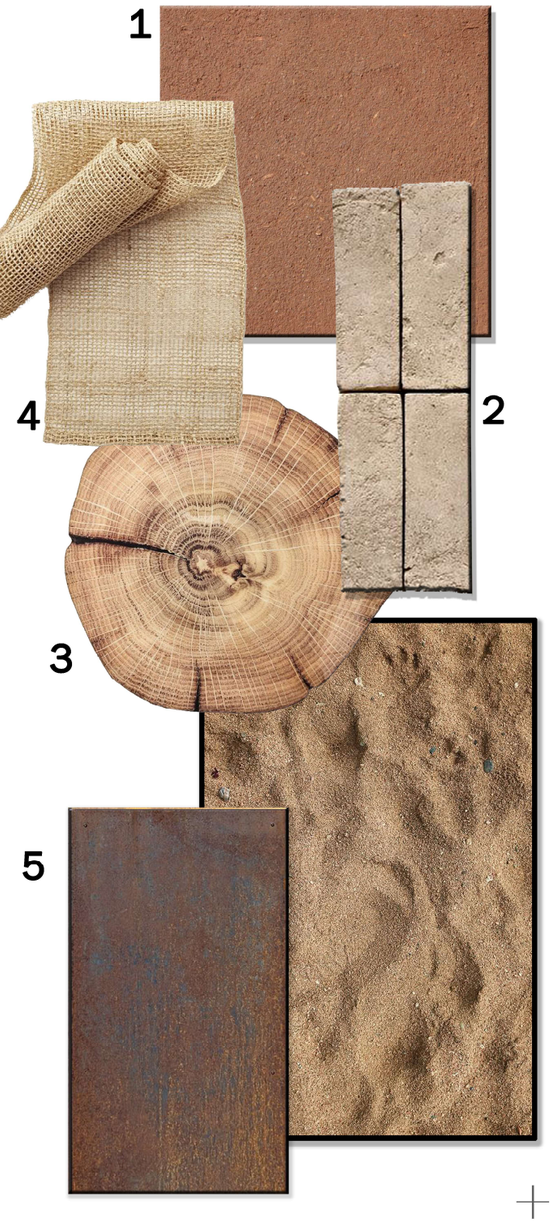
**1**
**Exterior finishing layer**
-**Material:** local clay
-**Color:** Terracotta local color

**2**
**Exterior Finishing Layer**
-**Material:** Mudbrick
-**Color:** Local earth color

**3**
**Structural beams & Aesthetic**
-**Material:** Palm wood
-**Color:** Brown

**4**
**Exterior Canopy/shading fabric**
-**Material:** Jute textile
-**Color:** Burlap

**5**
**Metal frames**
-**Material:** Rusted steel
-**Color:** Redish-brown



Chapter 3
Project Design

## 4- PROJECT ANALYSIS

### Vegetation

When choosing vegitation for this project it is nessecary to pick native and regionally adapted species, for that these plants should have several characteristics:

-Represents historical and cultural identity of the region
-Thrive in the arid climate and sandy soils
-Require minimal water and maintenance aligning with sustainability goals
-Integrate seamlessly into the project's contemporary vernacular design

A) Shrubs:

1.Calotropis procera
2.Tephrosia Apollinea
3.Zygophyllum Coccineum
4.Artemisia Judaica
5.Haloxylon Salicornicum
6.Nitraria Retusa
7. Capparis Decidua

B) Trees:

8.Acacia Tortilis(Umbrella Thorn)
9.Ziziphus spina-Christi(Christ's thorn Jujube)
10.Phoenix Dactylifera(Date Palm)
11.Balanites Aegyptiaca(Desert Date)
12.Commiphora gileadensis(Balm of Gilead)
13.Tamarix Aphylla(Salt Cedar)


1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12


13

Chapter 3
Project Design

## 4- PROJECT ANALYSIS

RENDER

Location: Project central area- Sports facilities zone




**1.** Project Central courtyard :sports facilities area at F.F.L -3.00m

**2.**Transversal zone: sports facilities area to pool area






**3.** Circulation zone in Projects central area at F.F.L +0.00

**4.** Transversal zone



Chapter 3
Project Design

## 4- PROJECT ANALYSIS

RENDER

Location: Project west wing- Marketspace zone



**1.**Marketplace courtyard

**2.**Marketplace courtyard





**3.** Typology 3: Short term accomodation unit overlooking marketplace

**4.** Typology 2: Long term accomodation unit overlooking privately Alula's Panoramic view



Chapter 3
Project Design

## 4- PROJECT ANALYSIS

RENDER

Project overview



**1.** Semi-public leisure zone: pool area

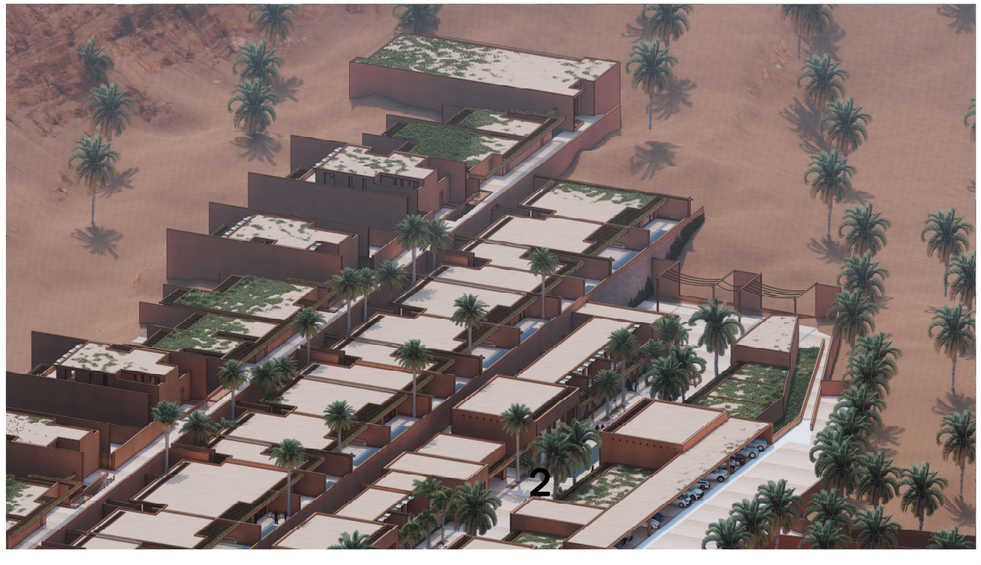
**2.** Leisure zone,Materplan overview





**3.** Marketplace zone/typology 2/Typology 1

**3.** Marketplace zone/typology 2/Typology 1



## CONCLUSION

This thesis demonstrates that contemporary vernacular architecture can successfully revitalize Alula's local vernacular principles while fostering sustainable and culturally authentic tourism developement .

Throught the comprehensive exploration of Alula's unique historical and architectural context, this project reinterprints traditional design features, such as Seeka alleyways, courtyards, and the old town's residential formations. The proposed resort design shows how locally sourced materials , preservation of natural landscape , and modern interventions ,can still harmonize with Alula's local cultural identity , hence creating a sustainable tourism experience that totaly respects and revitalize heritage while embracing innovation.

By bridging Tradition and Modernity this project is a model for culturally sensitive developement ,illustrating how vernacular type of structures and designs can serve economic growth through gaining more touristic activities while minimizing energy needs and gas emissions hence contributing to the broader vision of sustainable tourism while meeting "Sustainable Developement Goals" efficiently.

This resort forms a dialog between the past and present, offered as an example for future projects in the area that seeks to balance cultural preservation with developement goals, aligned with Saudi vision 2030 while ensuring the continuation of Alula's historical legacy which is an inspiration for generations to come.





CHAPTER 5
Bridging Heritage & Modernity

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-Fig.1,2: Heritage Conservation Consulting (HCC). Architectural Survey of Old Town AlUla. Image from Old Town AlUla: Architectural Survey and Conservation Guidelines. https://hcc-heritage.com/en/projects/old-town-alula-architectural-survey-and-conservation-guidelines/.

-Fig.3:AlUla Tourism. AlUla Old Town. Image from Experience AlUla. https://www.experiencealula.com/en/places-to-go/alula-old-town.

-Fig.4 :Heritage Conservation Consulting (HCC). Old Town AlUla Architectural Survey. Image from Old Town AlUla: Architectural Survey and Conservation Guidelines. https://hcc-heritage.com/en/projects/old-town-alula-architectural-survey-and-conservation-guidelines/.

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-Fig.6,7:Heritage Conservation Consulting (HCC). Old Town AlUla: Architectural Survey and Conservation Guidelines. https://hcc-heritage.com/en/projects/old-town-alula-architectural-survey-and-conservation-guidelines/.

-Fig.8-15:-RCU Foundation. “Journey Through Time Masterplan: AlUla.” 2019. https://www.afalula.com/wp-content/uploads/2019/07/CP-FINAL-GB-IMA-29-07-.pdf.